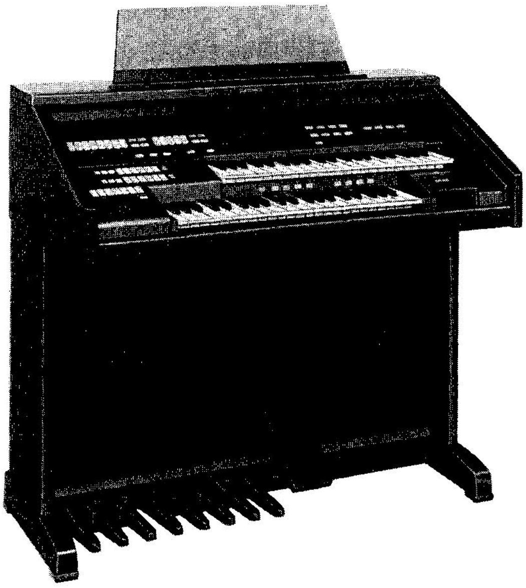
ORDER NO. EMID941563
A4

Service Manual

Electronic Organ

SX-EA5

(M), (MC), (XM), (EN), (EH), (EF), (EZ), (EW), (EA), (EP), (EK), (XL), (XR), (XS), (XD), (X), (XT)



AREAS

(M):	U.S.A.	(EK):	the United Kingdom
(MC):	Canada	(XL):	New Zealand
(XM):	Mexico	(XR):	Australia
(EN):	Norway, Sweden, Denmark, Finland	(XS):	Malaysia, Singapore, South Africa
(EH):	Holland, Belgium	(XD):	Saudi Arabia, Kuwait
(EF):	France, Italy	(X):	the Middle East, Indonesia, Hong Kong, the Philippines, Thailand
(EZ):	Germany		
(EW):	Switzerland		
(EA):	Austria		
(EP):	Spain,Portugal,Greece	(XT):	Taiwan

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

■ Specifications

KEYBOARD			UPPER KEYBOARD: 44 KEYS, LOWER KEYBOARD: 44 KEYS PEDAL KEYBOARD: 13 KEYS
SOUND GENERATOR			PCM
MAXIMUM NUMBER OF NOTES PRODUCED SIMULTANEOUSLY			ORGAN PART 32 NOTES / ALL OTHER PARTS 32 NOTES
SOUND	ORCHESTRAL CONDUCTOR (UPPER/LOWER)		ORGAN, SOUND 1, SOUND 2, SOLO
	SOUND GROUP (UPPER/LOWER) 100 SOUNDS		GROUP: PIANO, ELECTRIC PIANO/HARPSICHORD, GUITAR, STRINGS/VOCAL, BRASS, MALLET, SPECIAL PERC, REED, SAX/FLUTE, SYNTH
	ORGAN	TYPE (6 TYPES)	GROUP: ELECTRONIC TABS, DRAWBARS, PIPE ORGAN
		PRESET	27 (UPPER/LOWER)
		TAB	UPPER: 16', 5-1/3', 8', 4', 2-2/3', 2', 1', PERC 4', PERC 2-2/3' LOWER: 8', 4', 2-2/3', 2', 1'
	BASS PEDALS (41 SOUNDS)		GROUP: ORGAN, STANDARD, CONTEMPORARY, CLASSICAL ORGAN, ORCHESTRAL
EFFECT	TREMOLO & CELESTE		UPPER ORGAN, LOWER ORGAN, TREMOLO SLOW/FAST
	SUSTAIN		UPPER ORGAN, LOWER ORGAN, UPPER SOUND GROUP, LOWER SOUND GROUP, BASS PEDALS
	DIGITAL EFFECT		UPPER SOUND GROUP, LOWER SOUND GROUP, BASS PEDALS
	DIGITAL REVERB		○
TRANSPOSE			G-C-F#
TECHNI-CHORD			○
RHYTHM (100 RHYTHMS)			GROUP: 8 BEAT, 16 BEAT, BIG BAND/SWING, JAZZ COMBO, COUNTRY/RHYTHM & BLUES, MARCH/POLKA, LATIN, ROCK/DISCO, MODERN ROCK, ROCK (OTHERS), SHOW TIME, TRAD, WALTZ, ETHNIC
CONTROLS			MAIN VOLUME, BALANCE, U/L ORGAN TYPE, START/STOP, INTRO & ENDING, FILL IN 1, 2, VARIATION, COUNT INTRO, SYNCHRO & BREAK, TEMPO, KEYBOARD PERCUSSION, CONTRAST, EXPRESSION PEDAL, FOOT SWITCH

Technics

AUTO PLAY CHORD	ONE FINGER, FINGERED, PIANIST, MEMORY, DYNAMIC ACCOMP
EASY PLAY STYLE	ONE TOUCH ORGAN, ONE TOUCH REGISTRATION, ONE TOUCH PLAY/MUSIC STYLE SELECT, MUSIC STYLE ARRANGER
PANEL MEMORY	1-8, SET
COMPOSER	5 PARTS: ACCOMP 1, 2, 3, BASS DRUMS STORAGE CAPACITY: APPROX. 8600 NOTES INPUT MODES: REAL TIME RECORD, STEP RECORD FUNCTIONS: MODE SELECT, PATTERN COPY, LOAD SINGLE COMPOSER PATTERN MEMORY: 2 BANK × 6
SEQUENCER	16 TRACKS STORAGE CAPACITY: APPROX. 28000 NOTES INPUT MODES: EASY RECORD, REAL TIME RECORD, STEP RECORD FUNCTIONS: PUNCH RECORD, TRACK ASSIGN, EXPRESSION SETTING, EDIT (SONG CLEAR, TRACK CLEAR, TRACK MERGE, QUANTIZE, MEASURE ERASE, MEASURE COPY, MEASURE DELETE, MEASURE INSERT, VELOCITY CHANGE), PLAY, MEDLEY
DISK DRIVE	3.5 INCH (FOR 2HD, 2DD) FUNCTIONS: DISK SAVE, DISK LOAD, MIDI FILE LOAD, MIDI FILE SAVE, DISK FORMAT, LOAD SINGLE COMPOSER PATTERN, LOAD SINGLE SOUND MEMORY
SOUND	PART SETTING (SUSTAIN, REVERB, PAN, KEY SHIFT, TUNING, VOLUME, BEND RANGE, ASSIGN MODE), REVERB SETTING, TREMOLO SETTING, MASTER TUNING, TECHNI-CHORD TYPE, GLIDE SETTING, ORGAN EFFECT
MEMORY & CONTROL	INITIAL SETTING, FOOT SWITCH, POWER ON MODE, PANEL MEMORY MODE, MUSIC STYLE ARRANGER MODE
SOUND EDIT	EASY EDIT, GENERAL EDIT (OCTAVE SHIFT, VIBRATO, AUTOBEND & TRILL), TONE EDIT (TONE, VOLUME & PITCH, ENVELOPE, FILTER), EFFECT EDIT MEMORY: 2 BANK × 18 (UPPER/LOWER), 1 BANK × 16 (BASS)
MIDI	BASIC CHANNEL, CONTROL MESSAGE, OCTAVE SHIFT & LOCAL ON/OFF, REAL TIME MESSAGE, COMMON, PANEL MEMORY OUTPUT, MIDI PRESETS, INPUT SETTING, OUTPUT SETTING, GENERAL MIDI
DISPLAY	LCD (240 × 64 DOTS) CONTRAST, EXIT, DISPLAY HOLD, MORE/RETURN
HELP	○
DEMO	○
TERMINALS	LINE OUT (R/R+L, L), PHONES 1, 2, AUX IN (R/R+L, L), MIDI (IN, OUT, THRU)
OUTPUT	120 W
SPEAKER	20 cm × 2, 6.5 cm × 2 (13 cm × 6 cm) × 2
POWER REQUIREMENT	290 W 190 W (NORTH AMERICA AND MEXICO)
	AC 120/220/240 V 50/60 Hz AC 120 V 60 Hz (NORTH AMERICA AND MEXICO) AC 230 V 50/60 Hz (NEW ZEALAND) AC 230-240 V (EUROPE)
DIMENSIONS (W × H × D)	111.3 cm × 117.4 cm × 60.3 cm (43-13/16" × 46-7/32" × 23-3/4")
NET WEIGHT	68 Kg (149.9 lbs) (WITHOUT BENCH)

*Specification are subject to change without notice for further improvement.

WARNING

To prevent the risk of fire, smoke, or electrical shock and to ensure safe operation, please be sure to follow the safety guidelines below.

1. At places where special caution is required, the necessary safety precautions are clearly labeled or printed, for example, on the cabinet, or on the part concerned. Please follow these safety precautions, and also those listed in the Owner's Manual.
2. Parts which have a ⚠ mark in the circuit diagram or in the parts list are essential for safety. When replacing these parts, be sure to use only the specified parts.
3. Use the specified types for internal wiring (double-insulated wiring, etc.).
4. When replacing parts on the AC primary side (power transformer, electric switch, electrical cord, noise-prevention condenser, etc.), wind the lead wire and secure it by soldering.
5. Do not let the wiring come into contact with heat-emitting devices (fuse resistor, radiator plate, etc.).
6. When replacing the wiring, make sure that it is not in contact with the unfinished or rough edge of a part.
7. When replacing the power cord (except for the plug-in type), tug it from various directions to confirm that it does not slip out of place.
8. Spacing
   If soldering was done on the AC primary circuit, confirm that the interval between the soldered terminals or between the terminal and surrounding metallic parts is at least the minimum required (Between the primary circuit and the chassis: at least 6.5 mm; between primary circuit terminals: at least 4.0 mm; between primary circuit terminals and secondary circuit terminals: at least 6.5 mm.).

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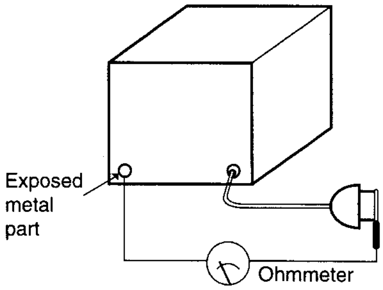
SAFETY PRECAUTION (This "safety precaution" is for the U.S.A. only)

● Safety Precaution

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only the manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc. .
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

● Insulation Resistance Test

1. Unplug the power cord and short the prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with an ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screw heads, connectors, control shafts, handle brackets, etc. . Measurements should range from 4 MΩ to infinity for all exposed parts.

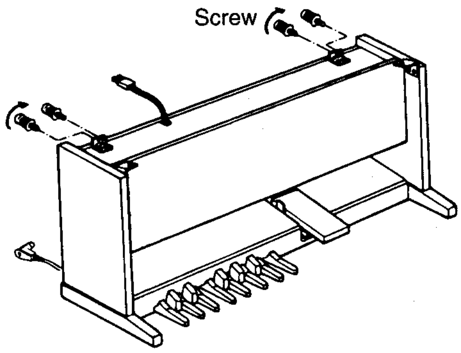


Resistance = 4MΩ to ∞

HOW TO ASSEMBLE THE ORGAN

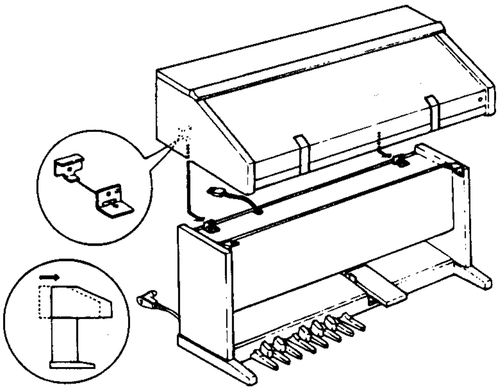
- To prevent the upper organ part from falling off the lower organ part, secure it firmly with the screws.

1 On the lower organ part, remove the four screws from the metal joints. Lay the cords to the back of the lower organ part.



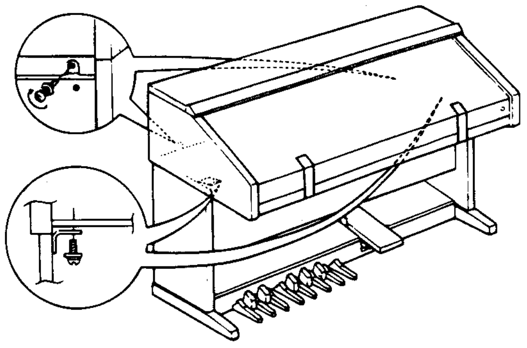
[Fig. 1]

2 Place the upper organ part on the lower organ part, making sure to fit the metal pieces together.



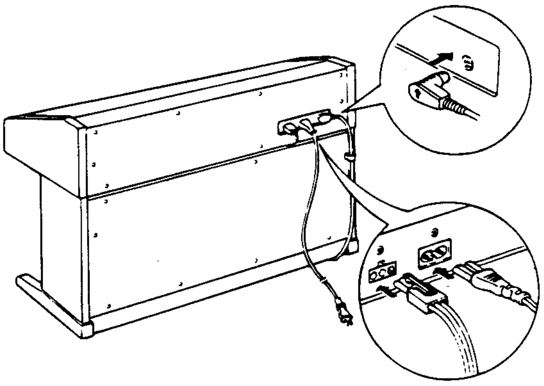
[Fig. 2]

3 Using the four screws removed in step 1, secure the upper organ part to the lower organ part as shown in figure. Unlock the cover with the accesory key.



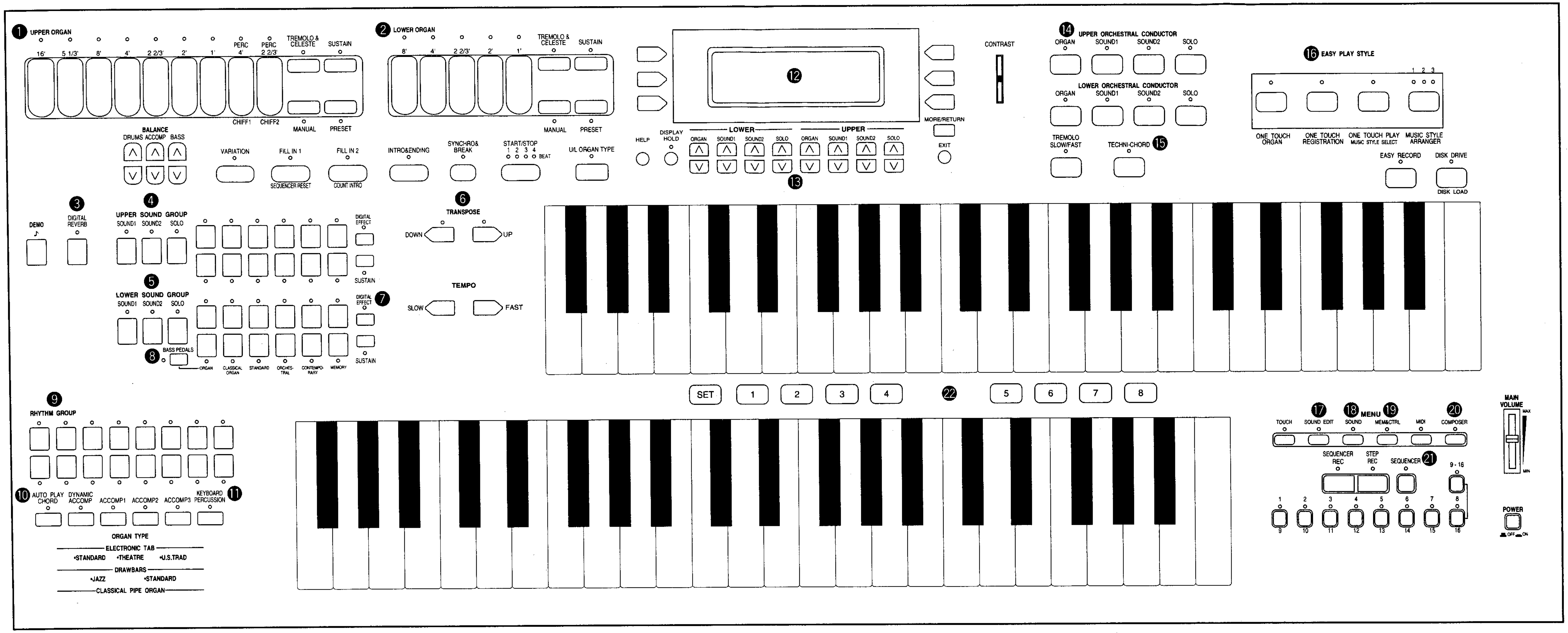
[Fig. 3]

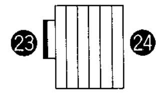
4 Connect the two cords from the lower unit and the power cord to the terminals on the upper unit.

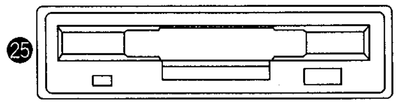


[Fig. 4]

ARRANGEMENT OF CONTROL PANEL


①
UPPER ORGAN
16'
5 1/3'
8'
4'
2 2/3'
2'
1'
PERC 4'
PERC 2 2/3'
TREMOLO & CELESTE
SUSTAIN
CHIFF1
CHIFF2
MANUAL
PRESET
②
LOWER ORGAN
8'
4'
2 2/3'
2'
1'
TREMOLO & CELESTE
SUSTAIN
MANUAL
PRESET
BALANCE
DRUMS
ACCOMP
BASS
VARIATION
FILL IN 1
SEQUENCER RESET
FILL IN 2
COUNT INTRO
INTRO&ENDING
SYNCHRO& BREAK
START/STOP
1 2 3 4 BEAT
U/L ORGAN TYPE
HELP
DISPLAY HOLD
⑫
LOWER
UPPER
ORGAN
SOUND1
SOUND2
SOLO
ORGAN
SOUND1
SOUND2
SOLO
⑬
MORE/RETURN
EXIT
CONTRAST
⑭
UPPER ORCHESTRAL CONDUCTOR
ORGAN
SOUND1
SOUND2
SOLO
LOWER ORCHESTRAL CONDUCTOR
ORGAN
SOUND1
SOUND2
SOLO
TREMOLO SLOW/FAST
TECHNI-CHORD
⑮
⑯
EASY PLAY STYLE
1 2 3
ONE TOUCH ORGAN
ONE TOUCH REGISTRATION
ONE TOUCH PLAY
MUSIC STYLE SELECT
MUSIC STYLE ARRANGER
EASY RECORD
DISK DRIVE
DISK LOAD
③
DEMO
DIGITAL REVERB
④
UPPER SOUND GROUP
SOUND1
SOUND2
SOLO
DIGITAL EFFECT
SUSTAIN
⑤
LOWER SOUND GROUP
SOUND1
SOUND2
SOLO
DIGITAL EFFECT
⑦
SUSTAIN
⑧
BASS PEDALS
ORGAN
CLASSICAL ORGAN
STANDARD
ORCHES-TRAL
CONTEMPO-RARY
MEMORY
⑥
TRANSPOSE
DOWN
UP
TEMPO
SLOW
FAST
SET
1
2
3
4
㉒
5
6
7
8
⑨
RHYTHM GROUP
⑩
AUTO PLAY CHORD
DYNAMIC ACCOMP
ACCOMP1
ACCOMP2
ACCOMP3
KEYBOARD PERCUSSION
⑪
ORGAN TYPE
ELECTRONIC TAB
•STANDARD
•THEATRE
•U.S.TRAD
DRAWBARS
•JAZZ
•STANDARD
CLASSICAL PIPE ORGAN
⑰
⑱
MENU
⑲
⑳
TOUCH
SOUND EDIT
SOUND
MEM&CTRL
MIDI
COMPOSER
SEQUENCER REC
STEP REC
SEQUENCER
㉑
9 - 16
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
MAIN VOLUME
MAX
MIN
POWER
OFF
ON





BASIC FUNCTIONS

① UPPER ORGAN
Select the organ sounds to be played on the upper keyboard. The volume is adjusted with the respective buttons below the display.

② LOWER ORGAN
Select the organ sounds to be played on the lower keyboard.

③ DIGITAL REVERB
Add reverberation to the sound.

④ UPPER SOUND GROUP
With this block of buttons, you select the sound for each of three sound parts. First you select a part, and then you select one of the many preset sounds for that part. Store a different sound for each part. When a part is selected in the **UPPER ORCHESTRAL CONDUCTOR**, the sound you set for that part is selected for the upper keyboard. **MEMORY** buttons are for storing unique sounds you create yourself with the **SOUND EDIT**feature. The volume of each part is adjusted with the respective buttons below the display.

⑤ LOWER SOUND GROUP
Sounds are selected for the lower keyboard parts in the same way as for the **UPPER SOUND GROUP** parts. The lower keyboard sounds are used mostly for accompaniment.

⑥ TRANSPOSE
C is the standard setting, but you can raise or lower the key of the entire organ with the two buttons. The transposed key is shown on the normal mode display.

⑦ Effects
The **DIGITAL EFFECT** and **SUSTAIN** effects are turned on and off for the selected upper and lower keyboard sounds.

⑧ BASS PEDALS
These are the sounds for the pedal keyboard. **MEMORY** button is for storing unique sounds you create yourself with the **SOUND EDIT** feature. The **BASS** sound volume is adjusted with the respective buttons in the separate **BALANCE** section.

⑨ RHYTHM GROUP
Select one of the various preset rhythms and start it instantly with the **START/STOP** button. Other features which enhance the **RHYTHM** unit are **SYNCHRO & BREAK, INTRO & ENDING, FILL IN** and a foot switch. The volume is adjusted with the **DRUMS** buttons in the **BALANCE** section.

⑩ AUTO PLAY CHORD
Add an automatic accompaniment to your selected rhythm. A full chord and a bass note are automatically produced when you play a key on the lower keyboard. Play major, minor, seventh or minor seven chords and the bass note just by pressing one key. The volume for each part of the **AUTO PLAY CHORD (ACCOMP, BASS, DRUMS)** is adjusted with the respective buttons in the separate **BALANCE** section.

⑪ KEYBOARD PERCUSSION
One press of the **KEYBOARD PERCUSSION** button transforms your lower keyboard into a whole band of percussive instruments and special sounds. The keys are picture-coded for quick and easy selection.

⑫ Display
In the normal mode, the display indicates the selected sounds, volumes, rhythm, tempo, and all other information about the panel settings. The display is also used for setting the various functions. The amazing number and range of settable functions makes the EA series organ truly an instrument which you can fashion to fit exactly your particular playing style and tastes. And finally, the display is your key to programming when using the **SOUND EDIT**, **COMPOSER** and **SEQUENCER** features of your organ. The **CONTRAST** is adjusted with the sliding control.

⑬ Balance
The volumes for the upper and lower keyboard parts are controlled with the corresponding buttons below the display. The **BASS** volume is adjusted with the **BASS** buttons in the separate **BALANCE** section.

⑭ ORCHESTRAL CONDUCTOR
These buttons allow you to select groups of sounds, or parts, and their effects instantly. The upper and lower keyboard parts are selected respectively with the **UPPER** and **LOWER ORCHESTRAL CONDUCTOR**.

⑮ TECHNI-CHORD
Chord notes played on the lower keyboard are added to melody notes played on the upper keyboard.

⑯ EASY PLAY STYLE
A simple operation provides automatic selection of the sounds, effect and various other panel settings which are suitable for the registration you chose.

⑰ SOUND EDIT functions
With this feature you select a preset sound, modify it until it sounds just the way you like it, and then store it in one of the memory locations. Edit and store many sounds for each of the **UPPER** and **LOWER SOUND GROUP** sections and **BASS** sounds.

⑱ SOUND functions
Turning on this button readies the display for use as a controller to preset sounds, effects, volume, and mode setting for each part.

⑲ MEMORY & CONTROL functions
The settable functions in this mode include memory initialization, **PANEL MEMORY** range, foot switch assign, and more.

⑳ COMPOSER
Create original rhythm patterns, either in real-time or with the step method, or modify preset rhythms. Store up to 12 new rhythms in the reserved memory locations for instant recall as you play.

㉑ SEQUENCER
With this feature you can separately play and store the parts for an entire tune. Then have the hole ensemble performance played back automatically. This is a true 16-track sequencer, with full real-time recording, step recording and editing features.

㉒ PANEL MEMORY
Set up the sounds and effects for the upper, lower and pedal keyboards, and then store them in these 8 buttons for instant recall as you play. You can expand the range of the storable settings to include rhythm selection, tempo setting and more.

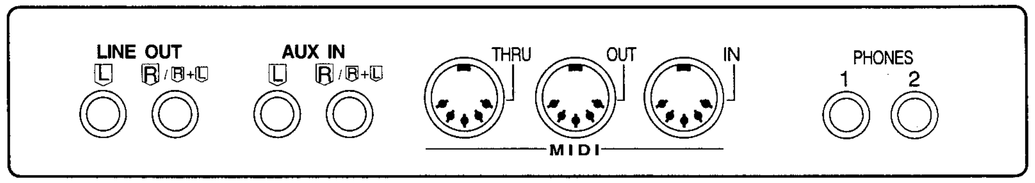
㉓ Glide control
Lower the pitch of the organ by one half-tone or whole tone by pressing the left foot switch. This is used, for example, to get the Hawaiian guitar effect.

㉔ Expression pedal
Increase and decrease the loudness of all the organ sound as you play to add expression to the music.

㉕ Disk Drive
The Disk Drive allows you to store up to 20 performances on a 3.5-in. 2HD, 2DD memory disk.

TERMINALS

(Beneath the right side of the lower keyboard)



LINE OUT (output level 1.0 Vrms, 600 Ω)
By connecting an external high-power amplifier, the sound can be reproduced at a high volume. To output monaural sound, connect the external equipment to the **R/R+L** terminal. (Do not connect the **L** terminal.)

MIDI (Musical Instrument Digital Interface)
MIDI is the standard specification that enables connection to equipment such as synthesizers and personal computers.

IN : The terminal that receives data from external equipment.
OUT : The terminal that transmits data from this instrument to external equipment.
THRU: The terminal that transfers data from the **IN** terminal directly to other equipment.

- Use a 5-pin DIN cord (less than 15 m long) for these connections.

PHONES 1, 2
For silent practice, headphones may be used. When plugged in, this instrument's speaker system is automatically switched off, and the sound is heard only through the headphones.

AUX IN (input level 500 mV, 33 kΩ)
Other instruments such as a keyboard can be connected to the organ so that the signal is output from the organ. This terminal runs through the expression pedal circuit and you can control the volume of the connected instrument with the expression pedal. To receive monaural sound, connect instruments to the **R/R+L** terminal. (In this case, do not use the **L** terminal.)

INITIAL SETTING

The initial setting function is used to return to the original factory settings, and to reset the customer settings and misoperations.

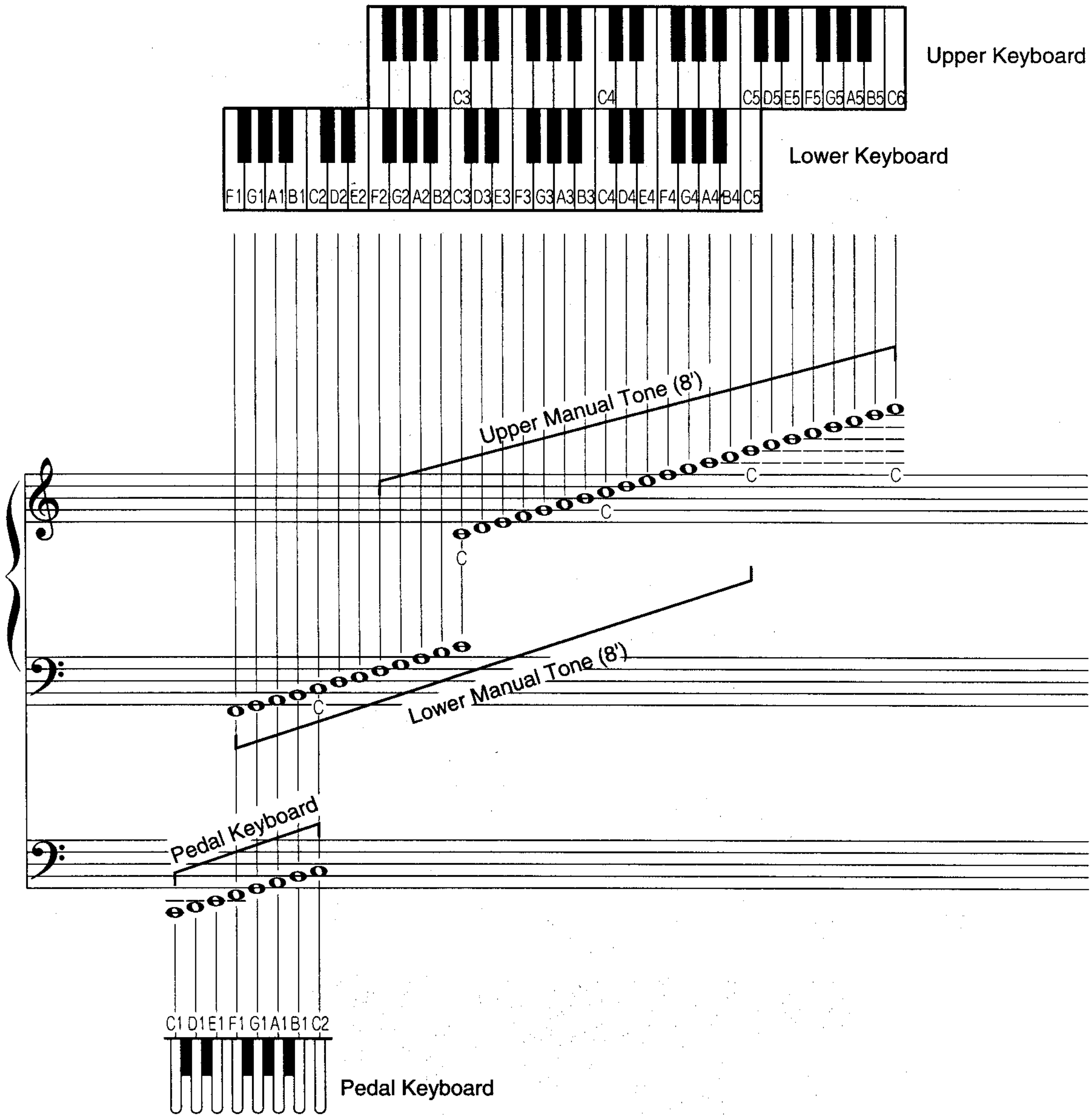
1. Press the **POWER** button to turn off the instrument.
2. While pressing the three lower left buttons in the **RHYTHM GROUP** section at the same time, turn the **POWER** button on again.

NOTE:
All stored data in the **SEQUENCER** and **COMPOSER** and other settings are initialized with this operation.

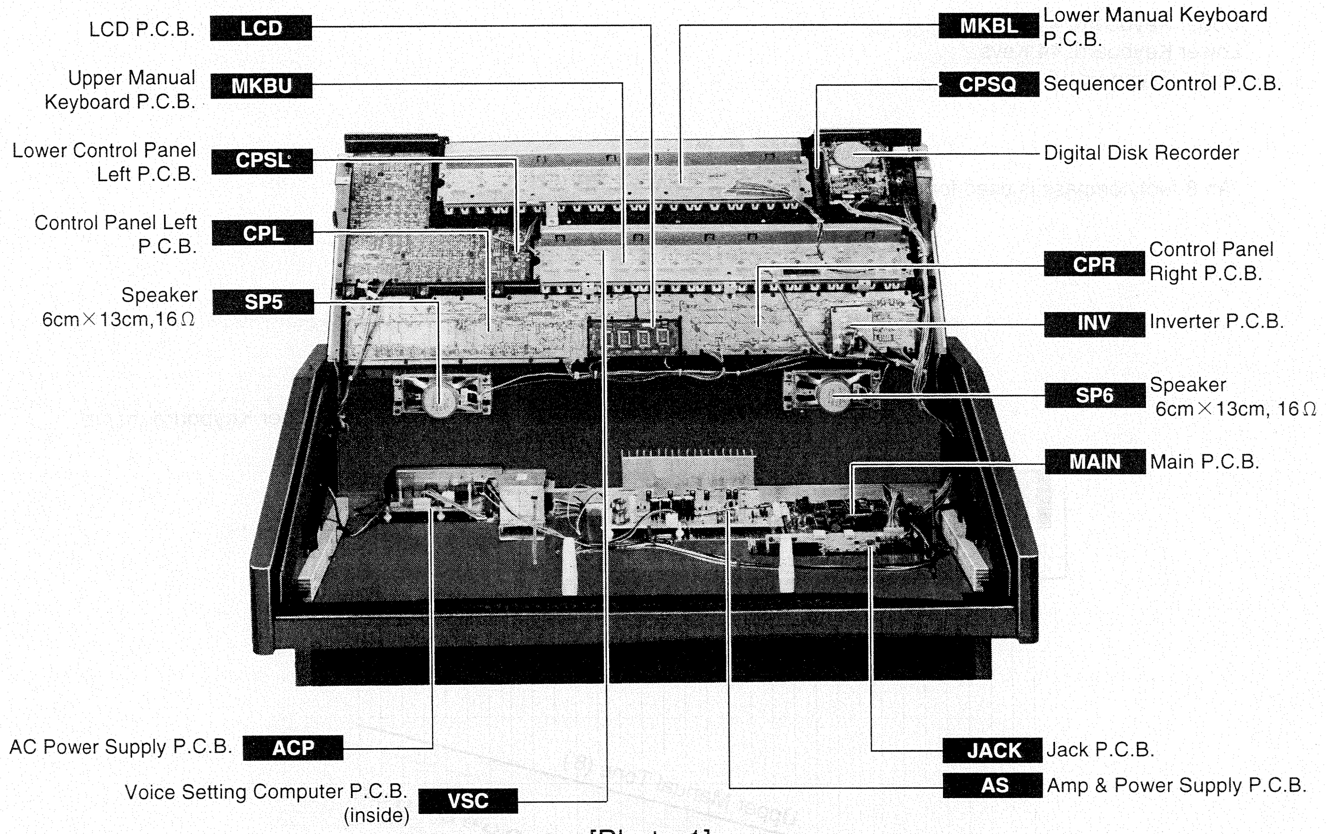
KEYBOARD RANGES

Upper Keyboard: 44 Keys
Lower Keyboard: 44 Keys
Pedal Keyboard:13 Keys

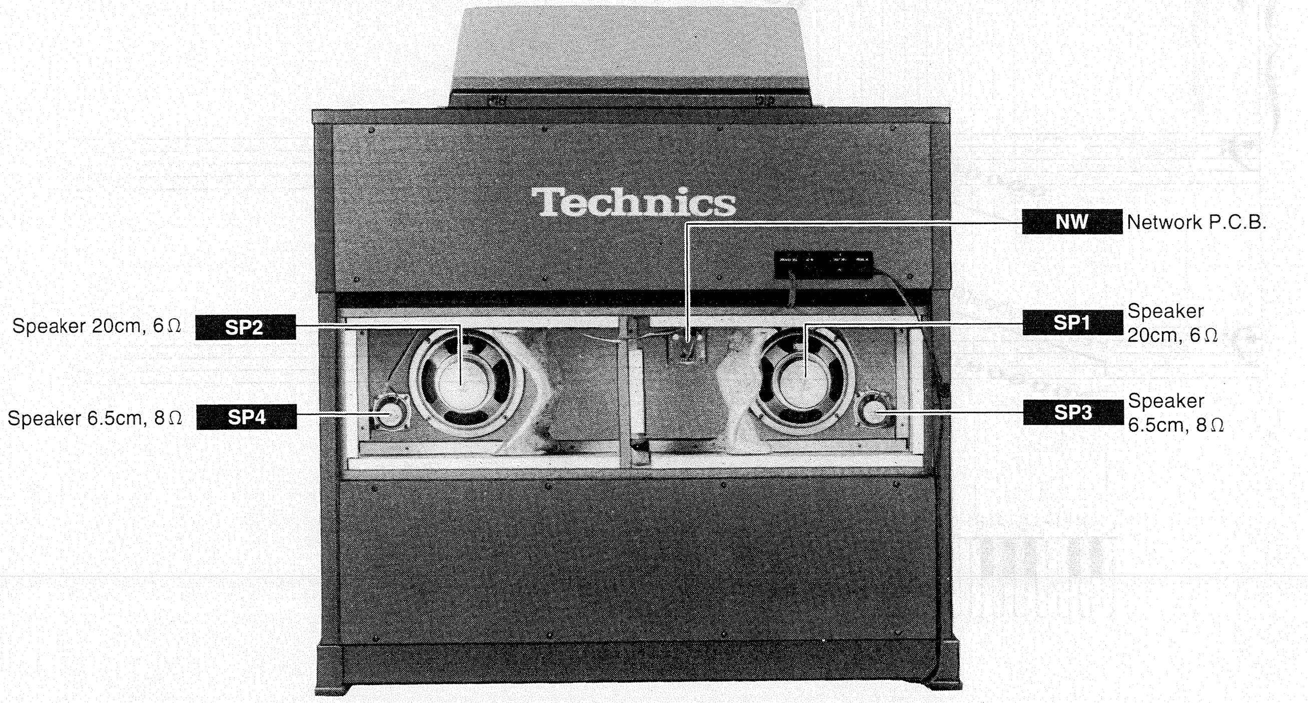
*An 8-foot compass is used for each keyboard


Upper Keyboard
C3
C4
C5 D5 E5 F5 G5 A5 B5 C6
Lower Keyboard
F1 G1 A1 B1 C2 D2 E2 F2 G2 A2 B2 C3 D3 E3 F3 G3 A3 B3 C4 D4 E4 F4 G4 A4 B4 C5
Upper Manual Tone (8')
C
C
C
C
Lower Manual Tone (8')
C
Pedal Keyboard
C1 D1 E1 F1 G1 A1 B1 C2
Pedal Keyboard

PARTS LOCATION


LCD P.C.B.
LCD
Upper Manual Keyboard P.C.B.
MKBU
Lower Control Panel Left P.C.B.
CPSL
Control Panel Left P.C.B.
CPL
Speaker 6cm×13cm,16Ω
SP5
MKBL
Lower Manual Keyboard P.C.B.
CPSQ
Sequencer Control P.C.B.
Digital Disk Recorder
CPR
Control Panel Right P.C.B.
INV
Inverter P.C.B.
SP6
Speaker 6cm×13cm, 16Ω
MAIN
Main P.C.B.
AC Power Supply P.C.B.
ACP
Voice Setting Computer P.C.B. (inside)
VSC
JACK
Jack P.C.B.
AS
Amp & Power Supply P.C.B.

[Photo-1]

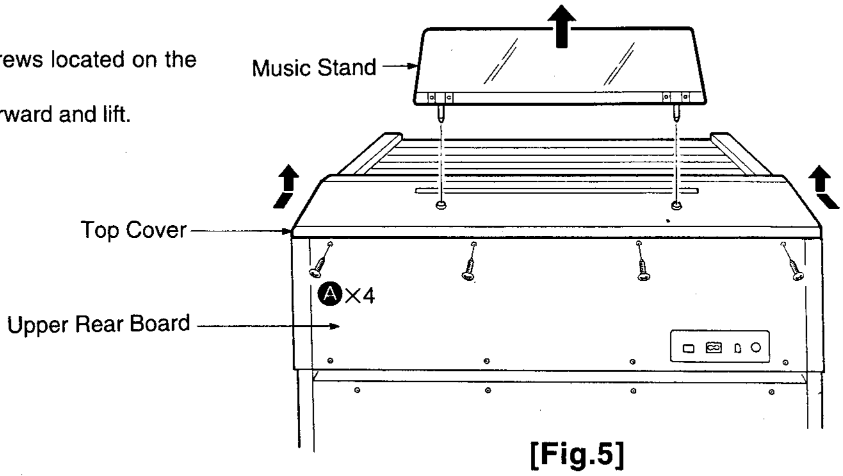

Technics
NW
Network P.C.B.
Speaker 20cm, 6Ω
SP2
SP1
Speaker 20cm, 6Ω
Speaker 6.5cm, 8Ω
SP4
SP3
Speaker 6.5cm, 8Ω

[Photo-2]

DISASSEMBLY INSTRUCTIONS

1 Removing the top cover

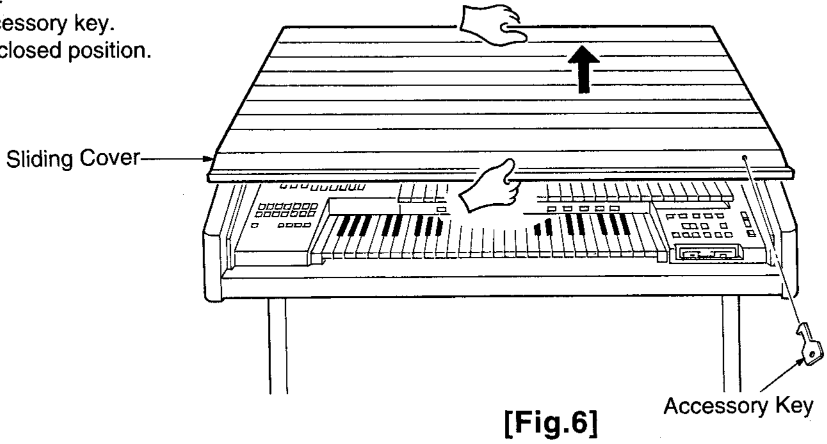
1. Remove the music stand.
2. Remove the top cover holding screws located on the upper rear board (Ⓐ 4 pcs.).
3. Remove the top cover, sliding it forward and lift.


Music Stand
Top Cover
Ⓐ×4
Upper Rear Board

[Fig.5]

2 Removing the sliding cover

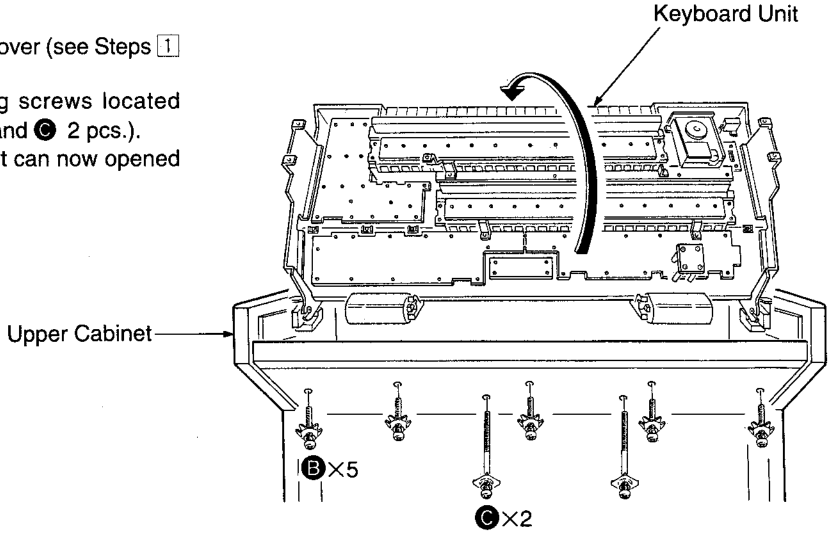
1. Remove the top cover (see Step 1).
2. Unlock the sliding cover with the accessory key.
3. Remove the sliding cover in its fully closed position.


Sliding Cover
Accessory Key

[Fig.6]

3 Opening the control panel with keyboard unit

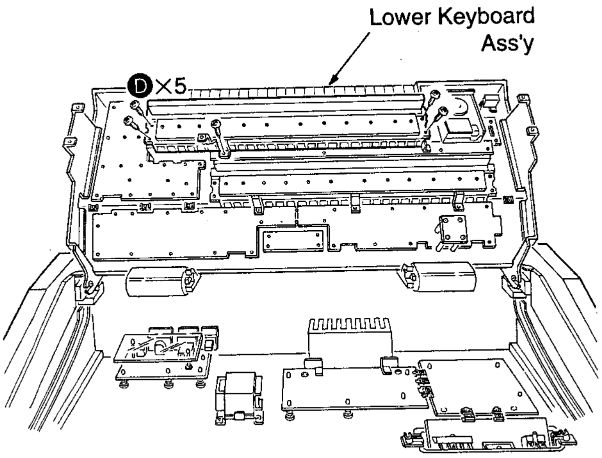
1. Remove both top cover and sliding cover (see Steps 1 and 2).
2. Remove the control panel holding screws located under the upper cabinet (Ⓑ 5 pcs. and Ⓒ 2 pcs.).
3. The control panel with keyboard unit can now opened upwards.


Keyboard Unit
Upper Cabinet
Ⓑ×5
Ⓒ×2

[Fig.7]

4 Removing the lower keyboard ass'y

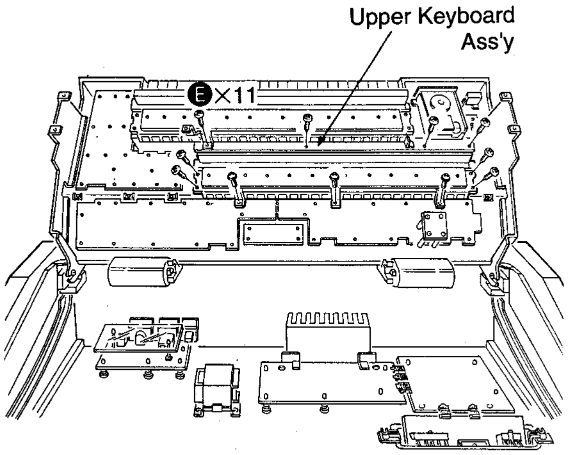
1. Open the control panel with keyboard unit (see Step 3).
2. Remove the lower keyboard ass'y holding screws (🅓 5 pcs.).
3. The lower keyboard ass'y can be removed.



[Fig.8]

5 Removing the upper keyboard ass'y

1. Open the control panel with keyboard unit (see Step 3).
2. Remove the upper keyboard ass'y holding screws (🅔11 pcs.).
3. The upper keyboard ass'y can be removed.

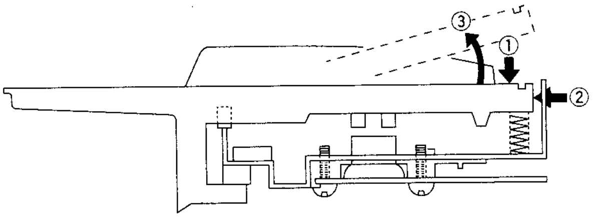


[Fig.9]

6 Removing the keys (s)

1. Remove the keyboard ass'y (see Steps 4 or 5).
2. Press downward on the rear of the key (Fig.10-①).
3. While pressing downward on the rear of the key, push the key forward and release it from the chassis (Fig.10-②.).
4. Lift the key and remove it from the cahssis (Fig.10-③.).

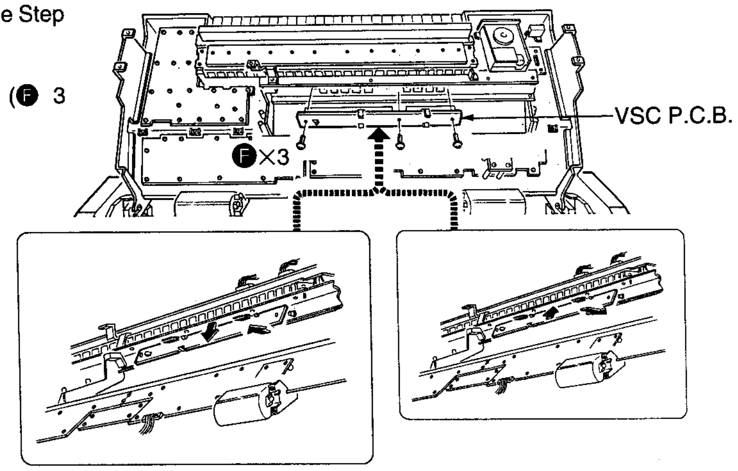
NOTE:
To remove a black key, the white key to either side of it should be removed first.



[Fig.10]

7 Removing the VSC P.C.B.

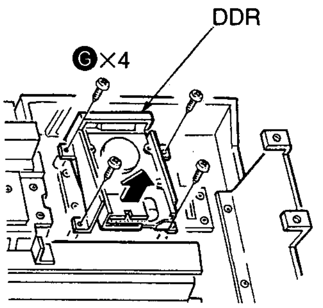
1. Open the control panel with keyboard unit (see Step 3).
2. Remove the upper keyborad (see Step 5).
3. Remove the VSC P.C.B. mounting screws (🅕 3 pcs.).



[Fig.11]

8 Removing the digital disk recorder (DDR)

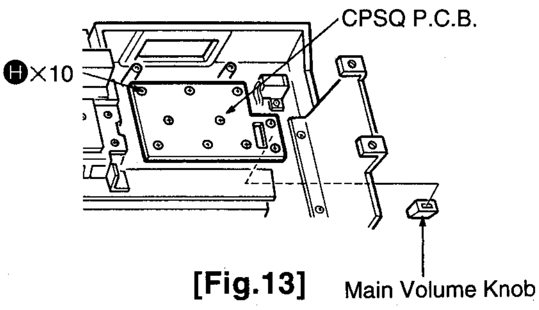
1. Open the control panel with keyboard unit (see Step 3).
2. Remove the DDR holding screws (🅖 4 pcs.).



[Fig.12]

9 Removing the CPSQ P.C.B.

1. Open the control panel with keyboard unit (see Step 3).
2. Remove the main volume knob.
3. Remove the DDR (see Step 8).
4. Remove the CPSQ P.C.B. mounting screws (🅗 10 pcs.).



[Fig.13]

10 Removing the CPSL, CPL, INV, CPR and LCD P.C.B.

- Open the control panel with keyboard unit (see Step 3).

CPSL P.C.B.

- Remove the CPSL P.C.B. mounting screws (🅘 20 pcs.).

CPL P.C.B.

- Remove the CPL P.C.B. mounting screws (🅙 15 pcs.).

INV P.C.B.

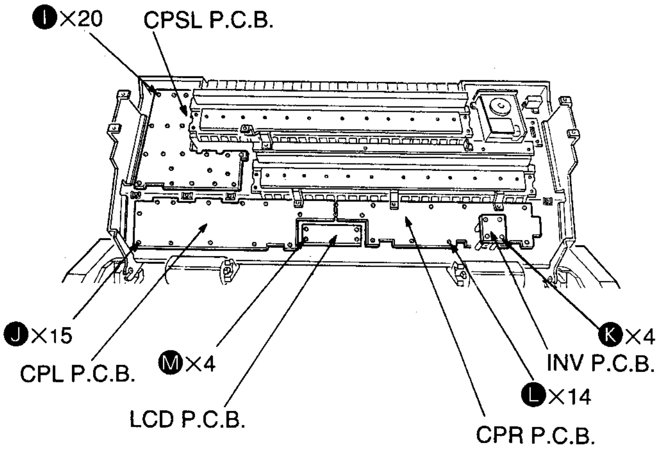
- Remove the INV P.C.B. mounting screws (🅚 4 pcs.).

CPR P.C.B.

1. Remove the INV P.C.B.
2. Remove the CPR P.C.B. mounting screws (🅛 14 pcs.).

LCD P.C.B.

- Remove the LCD P.C.B. mounting screws (🅜 4 pcs.).



[Fig.14]

11 Removing the ACP, AS, MAIN and JACK P.C.B.

- Open the control panel with keyboard unit (see Step 3).

ACP P.C.B.

1. Remove the ACP P.C.B. mounting screws (🅝 2 pcs.).
2. Release the claws of the P.C.B. holder.

AS P.C.B.

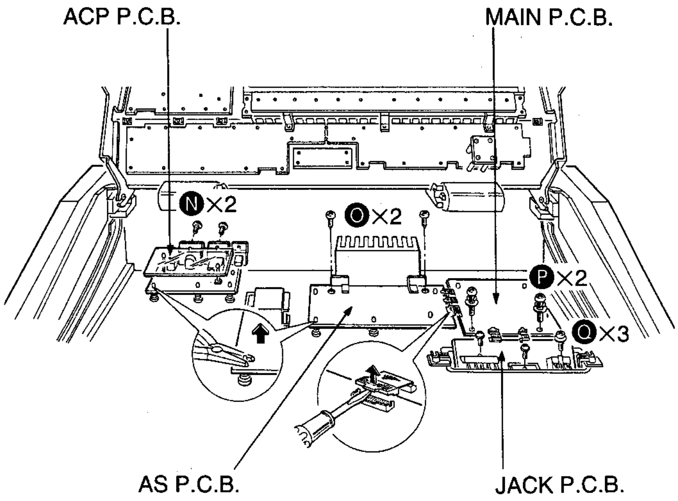
1. Remove the AS P.C.B. mounting screws (🅞 2 pcs.).
2. Release the claws of the P.C.B. holder.

MAIN P.C.B.

1. Remove the MAIN P.C.B. mounting screws (🅟 2 pcs.).
2. Release the claws of the P.C.B. holder.

JACK P.C.B.

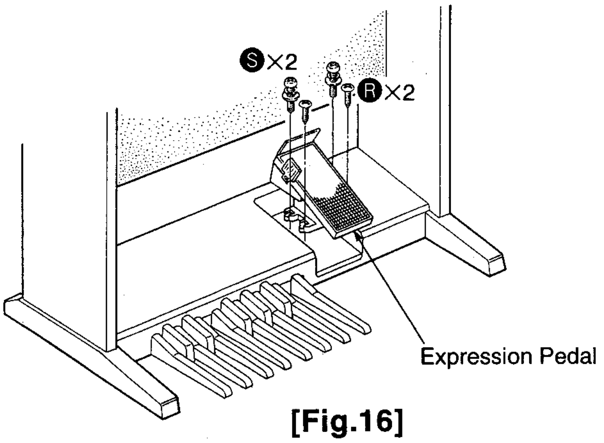
- Remove the JACK P.C.B. mounting screws (🅠 3 pcs.).



[Fig.15]

12 Removing the expression pedal

- Remove the expression pedal mounting screws (Ⓡ 2 pcs. and Ⓢ 2pcs.).


Ⓢ×2
Ⓡ×2
Expression Pedal

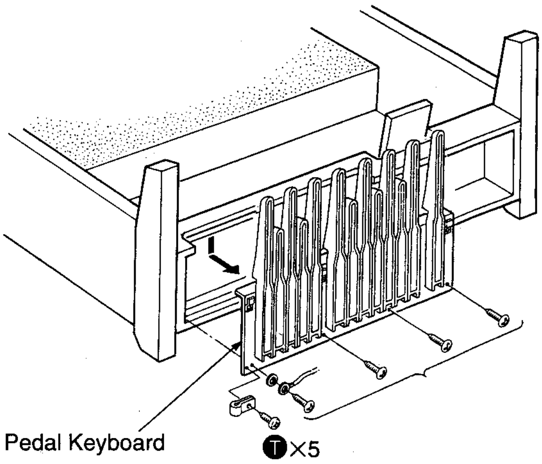
[Fig.16]

13 Removing the pedal keyboard

1. Gently turn over the instrument so that the rear of the organ is facing down.
2. Remove the pedal keyboard mounting screws (Ⓣ 5 pcs.).

Caution

- Take care not to scratch the organ when turning it over.


Pedal Keyboard
Ⓣ×5

[Fig.17]

14 Removing the speakers

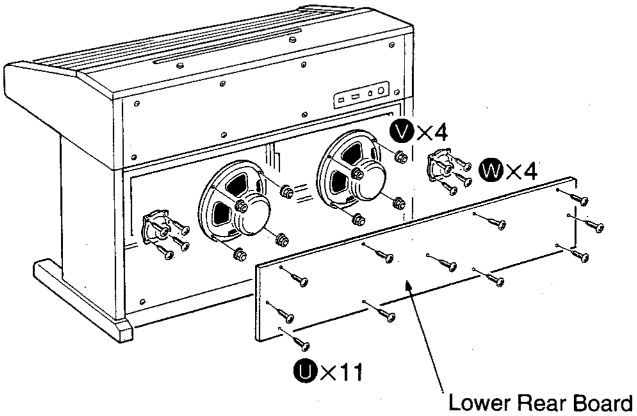
- Remove the lower rear board mounting screws (Ⓤ 11 pcs.).

20 cm speakers

- Remove the 20 cm speaker mounting nuts (Ⓥ 4 pcs.).

6.5 cm speakers

- Remove the 6.5 cm speaker mounting screws (Ⓦ 4 pcs.).


Ⓥ×4
Ⓦ×4
Ⓤ×11
Lower Rear Board

[Fig.18]

ERROR DISPLAY

The following messages on the display indicate that a mistake has been made in using the functions.

No.	Contents
00	The data on the disk that you are using is for a different product. The format of the disk is not correct.
01	An error has occurred while the disk was loading. Please try again!
02	There is no disk in the Disk Drive.
03	The file that you tried to load is empty.
05	An error has occurred while the disk was saving. Please try again!
06	The disk that you are using is write protected. Please remove the write protection and try again.
07	The disk that you are using is full. Please use another disk.
08	An error has occurred while the disk was formatting. The disk that you are using may be faulty. Please try formatting another disk.
10	The data is already copy protected.
20	A problem has occurred with your **SEQUENCER** Data. This might be due to a damaged or faulty disk.
21	Memory full
22	It is necessary to press PUNCH OUT to complete this procedure.
23	It is impossible to change the time signature because it has already been set in the existing tracks.
24	A rhythm track already exists. It is impossible to assign two tracks to rhythm.
25	It is only possible to change the velocity on a melody track.
26	It is only possible to merge melody tracks. Tracks such as rhythm, chord and control cannot be merged.
27	It is only possible to copy melody tracks. Tracks such as rhythm, chord and control cannot be copied.
28	This song is too long to be saved as a MIDI file.
29	The MIDI file that you have tried to load exceeds the memory capacity of this organ and cannot be played. The **SEQUENCER** memory has been cleared.
30	It is not possible to change the time signature or measure length of a **COMPOSER** pattern after it has been recorded. If you want to proceed, you must first clear the entire **COMPOSER** pattern.
31	The time signature of the pattern from which you are copying is different from the **COMPOSER** memory that you are using. Either: Change the time signature of the **COMPOSER** memory or: Copy from a pattern that has the same time signature.
32	Memory full
43	The file that you are trying to load was saved on a previous Technics Organ. It is only possible to load using the "ALL" option.
44	It is impossible to edit a Drum Kit or an ORGAN/CLASSICAL ORGAN bass sound. Select a different sound.
46	Data insert is possible only with melody tracks. RHYTHM, CHORD and CONTROL tracks cannot be used with data insert.

SYMPTOMS WHICH APPEAR TO BE SIGNS OF TROUBLE

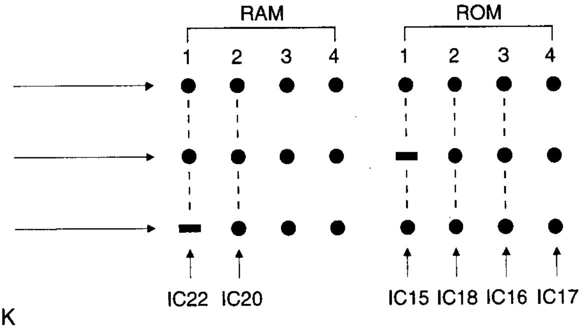
The following changes in performance may occur in Technics organ but do not indicate trouble.

Phenomenon		Remedy
Sounds and effects	The buttons, keys, etc. malfunction.	• Turn off the **POWER** button once, then turn it on again. If this procedure is not successful, turn off the **POWER** button once. Then, while pressing the three lower left buttons in the **RHYTHM GROUP** section (**ROCK/DISCO**, **MODERN ROCK** and **ROCK** [**OTHERS**]) at the same time, turn the **POWER** button on again. (Note that, in this case, all programmable settings, functions and memories return to their factory-preset status.)
	No sound is produced when the keys are pressed.	• The **MAIN VOLUME** is at the minimum setting. Adjust the volume with the **MAIN VOLUME** control. • The volumes for the selected parts are set to the minimum levels. Use the balance buttons to set the volumes of the relevant parts to appropriate levels. • The local control for a part performed on the keyboard is set to OFF. Set the LOCAL CONTROL to ON.
	The volume is very low when the keyboard is played.	• The speaker cord is not connected to the terminal on the rear panel. Connect the speaker cord so that the plug is fully inserted into the terminal. • The volume setting in the **SEQUENCER** contents is very low. Follow the **INITIAL** procedure to reset the settings.
	Some sounds cannot be selected.	• When the GENERAL MIDI mode is set to ON, the sounds which can be selected and operations which can be exectuted are limited. Set the GENERAL MIDI mode to OFF to return the instrument to its normal operation.
	The pedal keyboard sound is not produced. The expression pedal does not work.	• The pedal cord is not connected to the terminal on the rear panel. Connect the pedal cord so that the plug is fully inserted into the terminal.
	Only percussive instrument sounds are produced when the lower keyboard is played.	• The **KEYBOARD PERCUSSION** button is on.
	The foot switch does not operate properly.	• Any functional on and off operation other than the factory presets are storable in this switch. Store your favorite functions to turn them on and off.
	The sound of the lower keyboard does not stop.	• The MEMORY button of the **AUTO PLAY CHORD** is on. Turn off the MEMORY button.
Rhythm	The rhythm does not start.	• The **DRUMS** volume is set to the minimum level. Use the balance buttons to set the **DRUMS** volume to an appropriate level. • In the **RHYTHM GROUP** section, a rhythm in **COMPOSER A** or **COMPOSER B** with no stored pattern was selected. Select a different rhythm. • A **SEQUENCER** track button is on. When you are not playing back the **SEQUENCER** performance, turn off the track buttons. • CLOCK is set to MIDI. Set CLOCK to INTERNAL. • The rhythm does not work when the GENERAL MIDI mode is set to ON. Set the GENERAL MIDI mode to OFF.

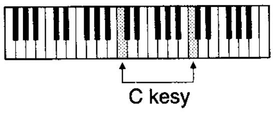
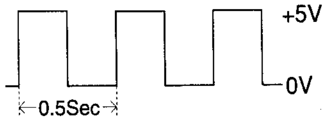
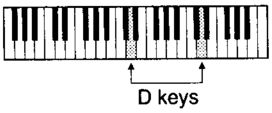
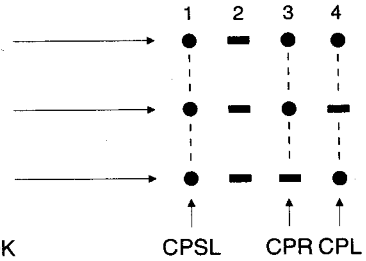
Phenomenon		Remedy
AUTO PLAY CHORD	No sound is produced for the automatic accompaniment.	• In the **RHYTHM GROUP** section, a rhythm in **COMPOSER A** or **COMPOSER B** with no stored pattern was selected. Select a different rhythm.
	No sound is produced for the automatic accompaniment, or only the sounds of some parts are produced.	• Some or all of the **ACCOMP 1**, **2** and **3** buttons are turned off. Press the buttons to turn them on. • The **ACCOMP** volume (in the **BALANCE** section) is set to the minimum. Adjust the volume to a suitable level.
SEQUENCER	Storage is not possible.	• The remaining memory capacity of the **SEQUENCER** is 0. Follow the SONG CLEAR or TRACK CLEAR procedure to erase the memory.
	Multi-track storage is not possible.	• The playback track has been selected, but the **START/STOP** button has not been pressed. A flashing track indicator shows the track which is ready for recording, and a lit track indicator shows a track which is ready for playback. To record one track while listening to another (playback) track, press the **START/STOP** button to begin playback.
	The playback measure indication is different from when the performance was recorded.	• The number of measures corresponds to the time signature of the rhythm selected at the start of recording. To change the rhythm in the middle of the song, record the rhythm change in the RHYTHM part.
COMPOSER	Storage is not possible.	• The remaining memory capacity of the **COMPOSER** is 0.
	Setting the time signature and number of measures is not possible.	• The time signature and number of measures cannot be changed for a pattern which is currently recorded in the **COMPOSER**. If you wish to change the time signature and/or measure data, first follow the procedure to clear the memory.
	The playback timing of the rhythm pattern is different from the timing with which it was recorded.	• The QUANTIZE function was on when the pattern was recorded and the timing was automatically corrected. Set the quantize level to a smaller note unit or to OFF when recording.
Disk Drive	The Disk Drive produces a noise during recording or playback.	• This occurs when the Disk Drive is reading a disk. It does not indicate a problem.
	When the procedure to load from a disk is performed, the contents of the keyboard memory are erased.	• When performing the load operation from a disk, the keyboard memory changes to that of the data loaded from the disk. If you wish to preserve a song which is stored in the keyboard memory, save it on a disk before performing the load procedure.
Other	Noise from a radio or TV can be heard.	• This sometimes occurs when electrical equipment such as a radio or TV is used near the instrument. Try moving such electrical equipment further away from the instrument. • The sound may be coming from a nearby broadcast station or amateur radio station. If the sound is bothersome, consult your dealer or service center.
	The cabinet becomes warm during use.	• This instrument has a built-in power source that heats the cabinet to some degree. This is not an indication of trouble.

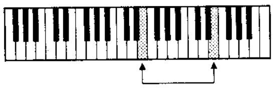
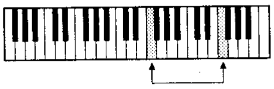
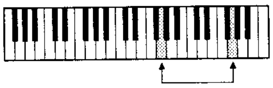
ABOUT THE SELF-DIAGNOSTIC FUNCTION

This model has some self-diagnostic capabilities. When set to the self-diagnostic mode, operation of various components can be verified by following the procedures in the chart below.

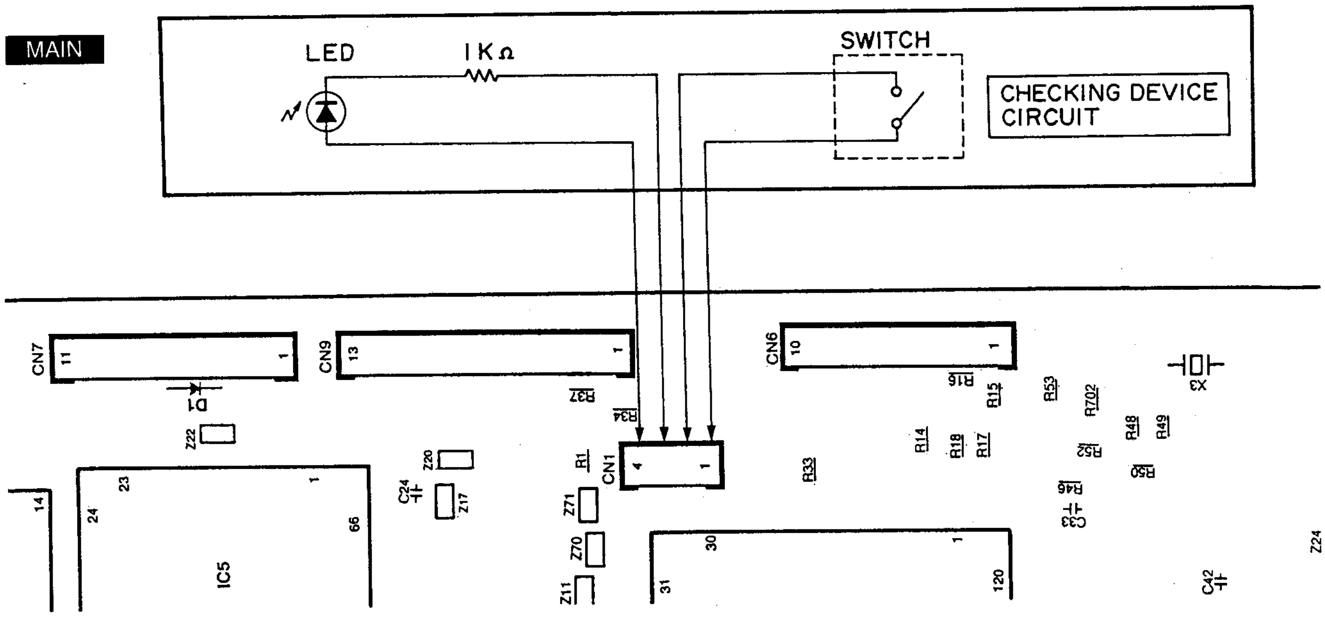
<table>
<tr><th>No.</th><th>PCB</th><th>TEST MODE</th><th>Procedure</th></tr>
<tr><td>1</td><td>MAIN</td><td>RAM (IC20, 22), ROM (IC15-18) check</td><td>1. Connect the CHECKING DEVICE (refer to page I-18) to CN 1 on the MAIN P.C.B., and turn on the CHECKING DEVICE switch.
2. Turn on the power switch.</td></tr>
<tr><td></td><td></td><td colspan="2">When the power switch is turned on, the LED of the CHECKING DEVICE flashes 8 times. The first 4 flashes are for the RAM check, and the latter 4 flashes are for the ROM check. The order of the LED flashes corresponds to the respective IC numbers as shown below. If an IC is defective, the corresponding flash time is longer.
Examples
1. RAM OK, ROM OK
2. RAM OK, ROM (IC15) defective
3. RAM (IC22) defective, ROM OK


RAM
ROM
1
2
3
4
1
2
3
4
IC22
IC20
IC15
IC18
IC16
IC17

NOTE : ● indicates short flash time = OK
▬ indicates long flash time = Defective</td></tr>
<tr><td>2</td><td>MAIN</td><td>V53 Gate Array (IC2) check</td><td>Press and hold the two C keys shown below, and then turn on the power switch.
Lower Keyboard
 </td></tr>
<tr><td></td><td></td><td colspan="2">Monitor pins (refer to page I-18) on oscilloscope, and check whether data (see figure) is output.
 </td></tr>
<tr><td>3</td><td>CPL
CPR
CPSL</td><td>Control panel CPU check</td><td>1. Connect the CHECKING DEVICE to CN 1 on the MAIN P.C.B. (The Checking Device switch should be off).
2. On the control panel, set all the sliding BALANCE controls to OFF.
3. Press and hold the two D keys shown below, and then turn on the power switch.
Lower Keyboard
 </td></tr>
<tr><td></td><td></td><td colspan="2">When the power switch is turned on, the LED of the CHECKING DEVICE flashes 4 times. The order of the LED flashes corresponds to the CPU (IC) on the respective P.C.B.s as shown below. If an IC is defective, the corresponding flash time is longer.
1. OK
2. CPL CPU defective
3. CPR CPU defective

NOTE : ● indicates short flash time = OK
▬ indicates long flash time = Defective</td></tr>
</table>

<table>
<tr><th>No.</th><th>PCB</th><th>TEST MODE</th><th>Procedure</th></tr>
<tr><td rowspan="2">4</td><td rowspan="2">MAIN</td><td>Wave ROM check
MAIN : IC23- 29, 31</td><td>1.Press and hold the two E keys shown below, and then turn on the power switch.
2.Press the SYNTH PAD (LOWER SOUND GROUP) button.
Lower Keyboard 
E keys</td></tr>
<tr><td>When set to the self-diagnostic mode, the Wave ROM outputs a sine wave. The Wave ROMs correspond to the keyboard keys as shown in the diagram to the right. When a key is pressed, the corresponding sine wave sound is produced. If no sound is produced, or if the sound is distorted, the Wave ROM corresponding to that key is defective.</td><td>• The key number indicates the Wave ROM number. (1:IC23, 2:IC24, 3:IC26)
Upper Keyboard
<table>
<tr><th>KEY / UPPER CONDUCTOR</th><th>C</th><th>C#</th><th>D</th><th>D#</th><th>E</th><th>F</th><th>F#</th><th>G</th><th>A</th><th>A#</th><th>B</th></tr>
<tr><td>Upper Organ</td><td>1</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td></tr>
<tr><td>Upper Sound</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td></tr>
</table></td></tr>
<tr><td rowspan="2">5</td><td rowspan="2">CPL
CPR
CPSQ</td><td>LED & SW check</td><td>Press and hold the two F keys shown below, and then turn on the power switch.
Lower Keyboard 
F keys</td></tr>
<tr><td colspan="2">All the LEDs turn off after lighting once. Confirm that all the LEDs light.</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">LCD</td><td>LCD Display check</td><td>Press and hold the two G keys shown below, and then turn on the power switch.
Lower Keyboard 
G keys</td></tr>
<tr><td colspan="2">All dots of the LCD screen light for 10 seconds, after which different displays appear in succession.</td></tr>
</table>

■ Connection between serving CHECKING DEVICE and MAIN P.C.B.


MAIN
LED
1KΩ
SWITCH
CHECKING DEVICE CIRCUIT
CN7
CN9
CN6
CN1
D1
IC5
X3
R1
R14
R15
R16
R17
R18
R32
R33
R34
R46
R48
R49
R50
R52
R53
R702
C24
C33
C42
Z11
Z17
Z20
Z22
Z24
Z70
Z71

MIDI IMPLEMENTATION CHART

Organ [SX-EA5] **(Transmitted)**

Function		U.SND1,2,SOLO (EA5) L.SND2,SOLO (EA5) PARTS	BASS (PEDAL)	L. SND1	K.B PERC (PART16)	U. ORGAN	L. ORGAN	ACMP1, ACMP2, ACMP3, BASS	DRUMS	CHORD	CONTROL	Remarks
Basic	Default	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	memorized
Channel	Changed	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	
Mode	Default	3	3	3	3	3	3	3	3	3	3	OMNI OFF,POLY MODE
	Messages	×	×	×	×	×	×	×	×	×	×	
	Altered	–	–	–	–	–	–	–	–	–	–	
Note		0-119	0-119	0-119	0-119	0-119	0-119	0-119	0-119	0-119	–	Changes depending on the position of the transpose control,octave shift,and drums type.
Number	True voice	–	–	–	–	–	–	–	–	–	–	
Velocity	Note ON	○	○	○	○	○	○	○	○	○	–	
	Note OFF	×	×	×	×	×	×	×	×	×	–	
After	Key's	×	×	×	×	×	×	×	×	×	–	
Touch	Ch's	○*	○*	○*	×	×	×	×	×	×	–	
Pitch Bender		○*	○*	○*	×	×	×	○*	×	×	×	
	0,32	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	bank select MSB, LSB
	1	○*	○*	○*	×	×	×	○*	×	○×*	×	modulation
	6,38	○×*	○×*	○×*	×	×	×	×	×	×	×	data entry MSB, LSB
	7	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	volume
	10	○×*	○×*	○×*	×	×	×	×	×	×	×	panpot (EA5)
	11	○×*	○×*	○×*	○×*	○×*	○×*	×	×	×	○×*	expression
	64	○×*	○×*	○×*	×	○×*	○×*	○×*	×	×	×	sustain
Control	80	×	×	○×*	×	×	×	×	×	×	×	auto play chord
Change	82	×	×	×	×	×	×	×	○×*	×	×	intro, fill in, ending
	91	○×*	○×*	○×*	○×*	×	×	×	×	○×*	○×*	reverb
	92	×	×	×	×	○×*	○×*	×	×	×	×	tremolo
	93	○×*	○×*	○×*	×	×	×	○×*	×	○×*	×	digital effect
	94	×	×	×	×	○×*	○×*	×	×	×	×	Celeste
	100,101	○×*	○×*	○×*	×	×	×	×	×	×	×	RPN LSB, MSB
	120	○	○	○	○	○	○	×	×	×	×	all sound off
	121	○×*	○×*	○×*	○×*	○×*	○×*	×	×	×	×	reset all controllers
Prog		○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○*	Changes depending on program change mode and prog.cng to p.mem.
Change	True #	–	–	–	–	–	–	–	–	–	–	
System exclusive		○										
System	Song Pos	○×*										
Common	Song Sel	○×* (0-19)										
	Tune	×										
System	Clock	○										
Real Time	Commands	○×*										start/stop,continue
	Local ON/ OFF	×	×	×	×	×	×	×	×	×	–	
Aux	All notes OFF	×	×	×	×	×	×	×	×	×	–	
Messages	Active Sense	○										
	Reset	×										
Notes		○×*…………Whether or not the data for each of these items is transmitted can be set. ○*……………Transmitted during SEQUENCER playback and during rhythm performance.										

Mode 1: OMNI ON, POLY Mode 2: OMNI ON, MONO ○:Yes
Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO ×:No

Organ [SX-EA5] **(Recognized)**

Function		U.SND1,2,SOLO (EA5) L.SND2,SOLO (EA5) PARTS	BASS (PEDALS)	L. SND1	K.B PERC (PART16)	U. ORGAN	L. ORGAN	ACMP1, ACMP2, ACMP3, BASS	DRUMS	CHORD	CONTROL	Remarks
Basic Channel	Default	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	memorized
	Changed	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	
Mode	Default	3	3	3	3	3	3	3	3	3	3	OMNI OFF,POLY MODE
	Messages	×	×	×	×	×	×	×	×	×	×	
	Altered	–	–	–	–	–	–	–	–	–	–	
Note Number		0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127	–	Changes depending on the position of the transpose control,octave shift,and drums type.
	True voice	0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127	–	
Velocity	Note ON	○	○	○	○	○	○	○	○	○	–	
	Note OFF	×	×	×	×	×	×	×	×	×	–	
After Touch	Key's	×	×	×	×	×	×	×	×	×	–	
	Ch's	×	×	×	×	×	×	×	×	×	–	
Pitch Bender		○×*	○×*	○×*	×	×	×	○×*	×	○×*	×	
Control Change	0,32	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	bank select MSB, LSB
	1	○×*	○×*	○×*	×	×	×	○×*	×	○×*	×	modulation
	6,38	○×*	○×*	○×*	×	×	×	×	×	×	×	data entry MSB, LSB
	7	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	volume
	10	○×*	○×*	○×*	×	×	×	×	×	×	×	panpot (EA5)
	11	○×*	○×*	○×*	○×*	○×*	○×*	×	×	×	○×*	expression
	64	○×*	○×*	○×*	×	○×*	○×*	○×*	×	×	×	sustain
	80	×	×	○×*	×	×	×	×	×	×	×	auto play chord
	82	×	×	×	×	×	×	×	○×*	×	×	intro, fill in, ending
	91	○×*	○×*	○×*	○×*	×	×	×	×	○×*	○×*	reverb
	92	×	×	×	×	○×*	○×*	×	×	×	×	tremolo
	93	○×*	○×*	○×*	×	×	×	○×*	×	○×*	×	digital effect
	94	×	×	×	×	○×*	○×*	×	×	×	×	Celeste
	100,101	○×*	○×*	○×*	×	×	×	×	×	×	×	RPN LSB, MSB
	120	○	○	○	○	○	○	○	○	○	×	all sound off
	121	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	reset all controllers
Prog Change		○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	Changes depending on program change mode and prog.cng to p.mem.
	True #	0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127		
System exclusive		○										
System common	Song Pos	○×*										
	Song Sel	○×* (0-19)										
	Tune	×										
System Real Time	Clock	○										
	Commands	○×*										start/stop,continue
Aux Messages	Local ON/OFF	×	×	×	×	×	×	×	×	×	–	
	All notes OFF	○	○	○	○	○	○	○	○	○	–	
	Active Sense	○										
	Reset	×										
Notes		○×*············Whether or not the data for each of these items is received can be set.										

Mode 1: OMNI ON, POLY Mode 2: OMNI ON, MONO ○:Yes

Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO ×:No

PRECAUTIONS BEFORE SERVICING

■ Precautions for measuring of the output waveforms.

1. The waveform was measured with a "National Digital Storage Oscilloscope VP-5730A". Therefore the waveforms of musical tone signals shown may differ somewhat due to the difference in the timing of triggering.
2. Since the 1/10 test probe is used, the indicated voltage value on the bottom part of each waveform photo is 1/10 of the actual value (e.g. 0.2 V/cm should be 2.0 V/cm).
3. To measure the waveforms, first set this unit to the self-diagnostic mode (refer to page I-18, No. 4). The Wave ROM output will then be output as a sine wave to facilitate the servicing check.

■ Important safety notice:

Components identified by a ⚠ mark have special characteristics impotant for safety.
When replacing any of these components, use only manufacture's specified parts.

■ Symbolic Marks

The symbolic marks for resistors and capacitors which used in this circuits are classified as following TABLE-1 and TABLE-2.

1. RESISTORS
   - Resistors without symbolic mark are FIXED CARBON FILM RESISTORS (ERD-type).
   - All resistors are 1/4 WATT, ±5 % TOLERANCE unless otherwise designated in schematic diagrams.

(TABLE-1)

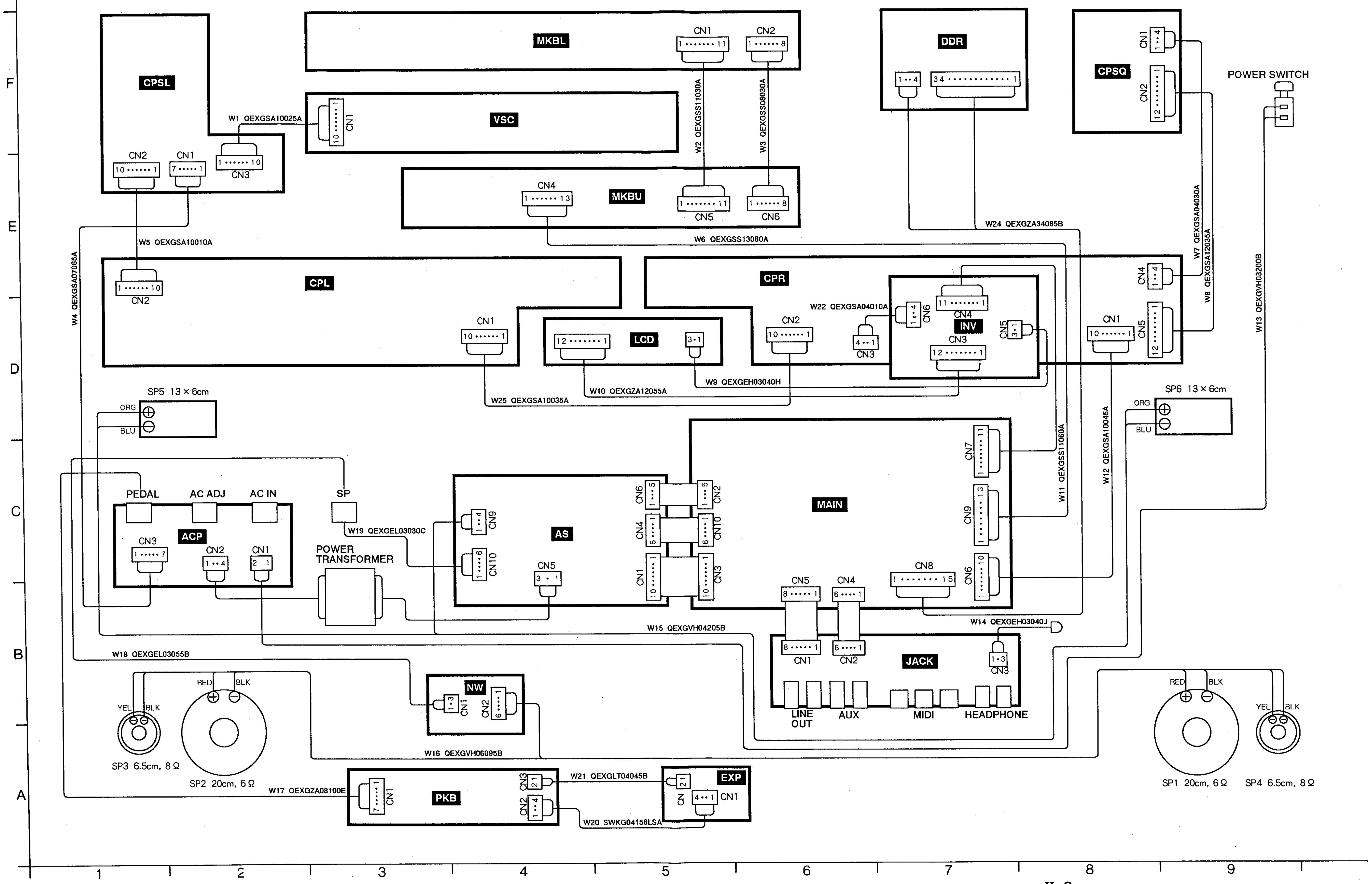
SYMBOL	SPECIFICATION	SYMBOL	SPECIFICATION
Ⓕ	Fixed Carbon Film Resistors "FLAME-PROOF" (ERD—F—type)	Ⓕ	Fixed Metal Film Resistors "FLAME-PROOF" (ERX—type)
Ⓕ	Fixed Wire Wound Resistors "FLAME-PROOF" (ERF—type)	🄵	Fuse Type Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERQ—type)
Ⓕ	Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERG—type)	🄵	Fuse Type Fixed Carbon File Resistors "FLAME-PROOF" (ERD2FC—type)
Ⓖ	Fixed Metal Film Resistors (Precision and High Stability) (ERO—type)		

2. CAPACITORS
   - Capacitors without symbolic mark are POLYESTER CAPACITORS. (ECQM-type, ECQG-type, ±10 % Tolerance)
   - Polarized capacitors without symbolic mark are Aluminum Electrolytic Capapcitors. (ECEA-type, ±20 % Tolerance)

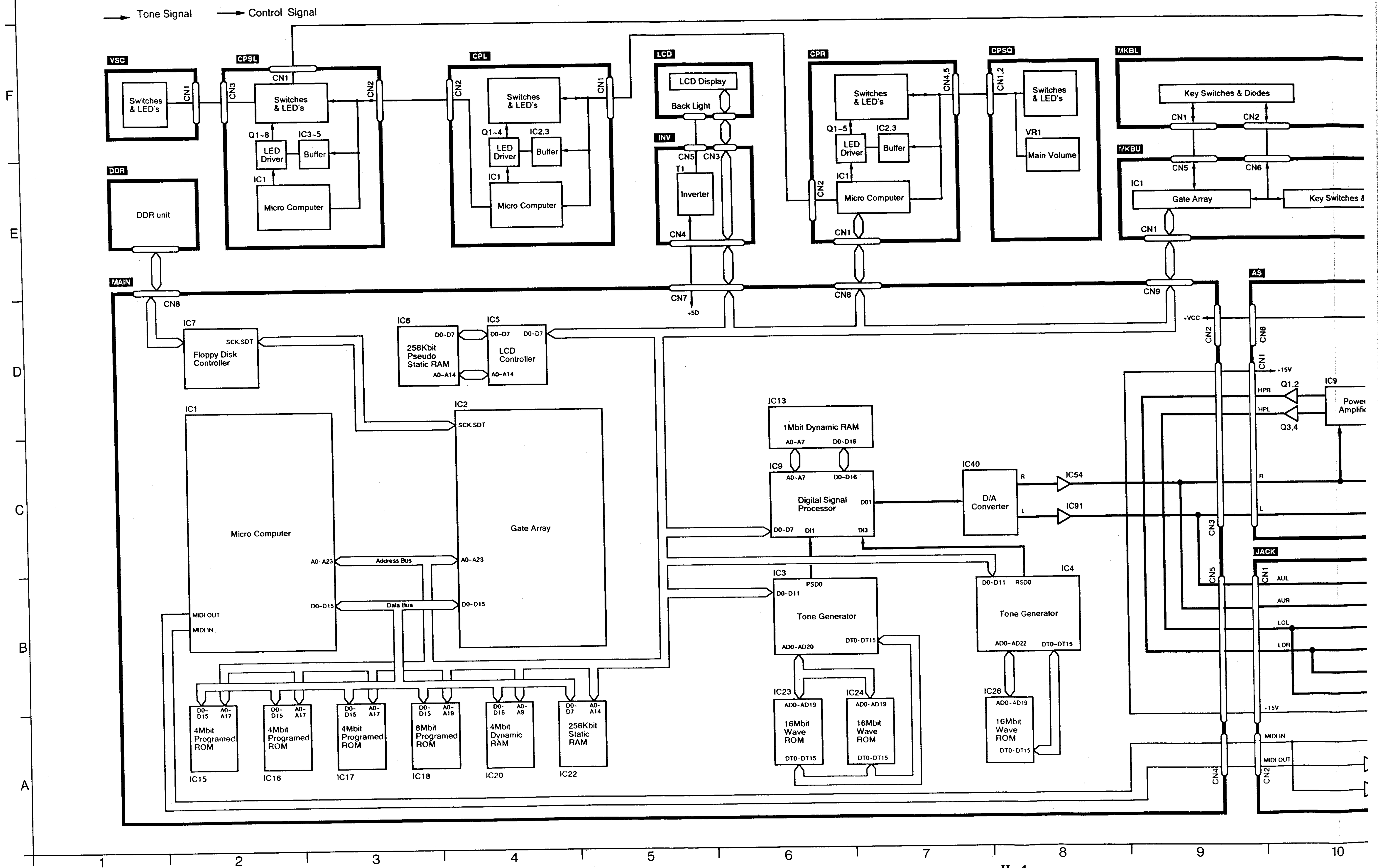
(TABLE-2)

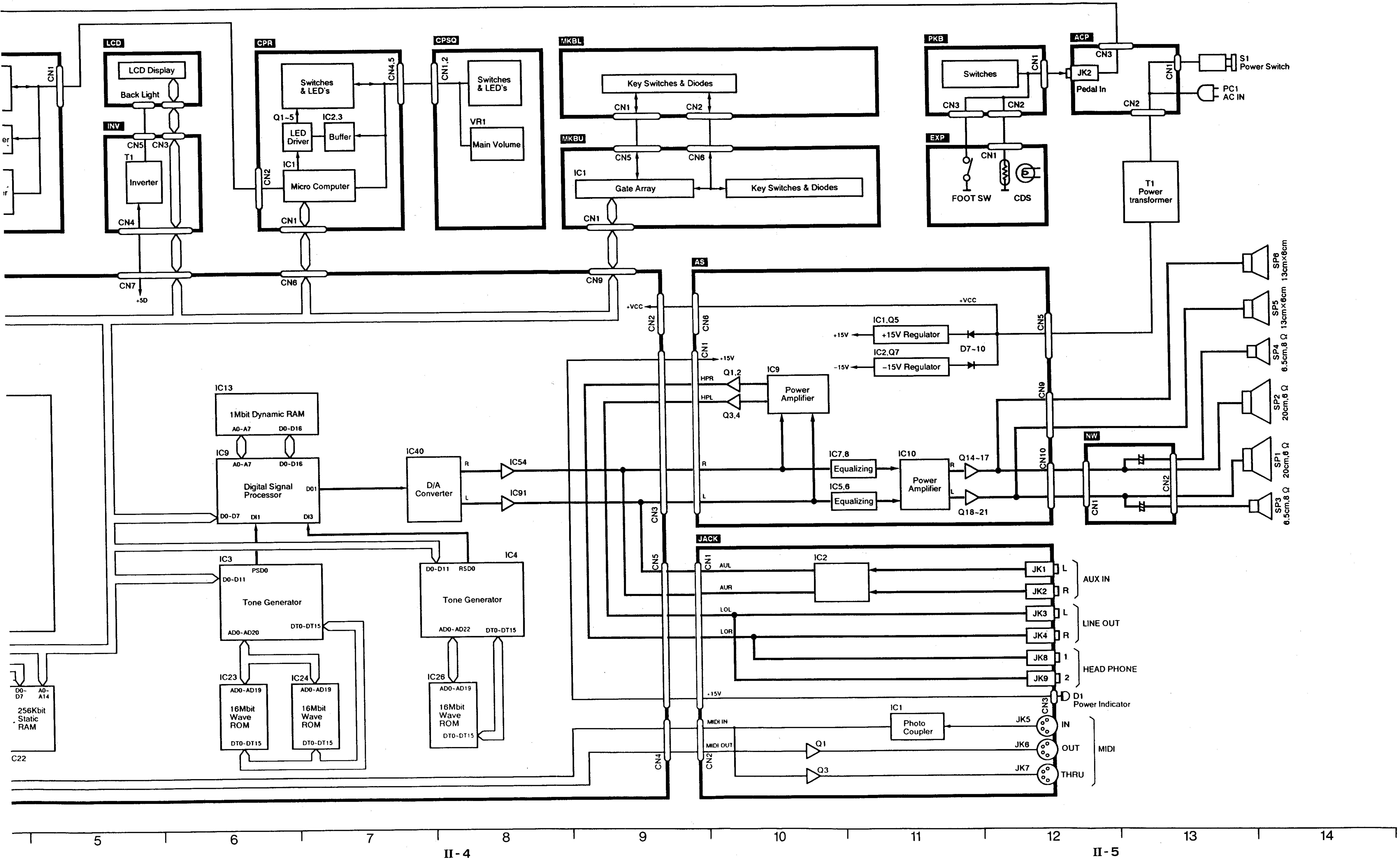
SYMBOL	SPECIFICATION	TYPE
Ⓝ	Non-Polarized Electrolytic Capacitors	ECEA_KN_type
Ⓨ	Non-Polarized Electrolytic (for Network system)	ECEA_Y_type
Ⓣ	Tantalum Solid Electrolytic Capacitors	ECS_type
(TF)	Metalized Plastic Film Capacitors (TF Series)	ECQV_type
○	Temperature Compensating Ceramic Capacitors	ECC_type
	High-Dielectric Constant Ceramic Capacitors	ECK_type ECR_type
	Axial Lead Ceramic Capacitors	ECB_type
	Metalized Polyester Film Capacitors for Across the Line	ECQ_EW_type
	Aluminum Electrolytic Capacitors for Smoothing Circuit	ECES_type
	Multilayer Ceramic Chip Capacitors	ECUV_type

WIRING CONNECTION Diagram


F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
CPSL
CN2
10 ······ 1
CN1
7 ····· 1
CN3
1 ······ 10
W1 QEXGSA10025A
MKBL
CN1
1 ········ 11
CN2
1 ······ 8
VSC
CN1
10 ······ 1
W2 QEXGSS11030A
W3 QEXGSS08030A
MKBU
CN4
1 ······ 13
CN5
1 ········ 11
CN6
1 ······ 8
DDR
1 •• 4
34 ·············· 1
W24 QEXGZA34085B
CPSQ
CN1
1 •• 4
CN2
12 ········ 1
POWER SWITCH
W6 QEXGSS13080A
W5 QEXGSA10010A
W4 QEXGSA07065A
CPL
CN2
1 ······ 10
CN1
10 ······ 1
CPR
CN2
10 ······ 1
W22 QEXGSA04010A
CN6
1 •• 4
4 •• 1
CN3
CN4
11 ········ 1
INV
CN3
12 ········ 1
CN5
3 • 1
CN1
10 ······ 1
CN4
1 •• 4
CN5
12 ········ 1
W7 QEXGSA04030A
W8 QEXGSA12035A
W13 QEXGVH03200B
LCD
12 ········ 1
3 • 1
W10 QEXGZA12055A
W9 QEXGEH03040H
W25 QEXGSA10035A
SP5 13 × 6cm
ORG
BLU
SP6 13 × 6cm
ORG
BLU
W11 QEXGSS11060A
W12 QEXGSA10045A
MAIN
CN7
1 ········ 11
CN9
1 ········ 13
CN6
1 ······ 10
CN8
1 ········ 15
CN2
1 •• 5
CN10
6 ···· 1
CN3
10 ······ 1
CN5
8 ····· 1
CN4
6 ···· 1
PEDAL
AC ADJ
AC IN
SP
ACP
CN3
1 ····· 7
CN2
1 •• 4
CN1
2 1
W19 QEXGEL03030C
POWER TRANSFORMER
AS
CN9
1 •• 4
CN10
1 ···· 6
CN5
3 • 1
CN6
1 •• 5
CN4
6 ···· 1
CN1
10 ······ 1
W15 QEXGVH04205B
W14 QEXGEH03040J
JACK
CN1
8 ····· 1
CN2
6 ···· 1
CN3
1 • 3
LINE OUT
AUX
MIDI
HEADPHONE
W18 QEXGEL03055B
NW
CN1
1 • 3
CN2
6 ···· 1
RED
BLK
YEL
BLK
SP3 6.5cm, 8 Ω
SP2 20cm, 6 Ω
W16 QEXGVH06095B
RED
BLK
YEL
BLK
SP1 20cm, 6 Ω
SP4 6.5cm, 8 Ω
W17 QEXGZA08100E
PKB
CN1
7 ····· 1
CN3
2 1
CN2
1 •• 4
W21 QEXGLT04045B
W20 SWKG04158LSA
EXP
CN
2 1
CN1
4 •• 1

BLOCK Diagram


Tone Signal
Control Signal
VSC
Switches & LED's
CN1
CPSL
CN3
CN1
CN2
Switches & LED's
Q1~8
IC3~5
LED Driver
Buffer
IC1
Micro Computer
CPL
CN2
CN1
Switches & LED's
Q1~4
IC2.3
LED Driver
Buffer
IC1
Micro Computer
LCD
LCD Display
Back Light
INV
CN5
CN3
T1
Inverter
CN4
CPR
Switches & LED's
CN4,5
Q1~5
IC2.3
LED Driver
Buffer
IC1
CN2
Micro Computer
CN1
CPSQ
CN1,2
Switches & LED's
VR1
Main Volume
MKBL
Key Switches & Diodes
CN1
CN2
MKBU
CN5
CN6
IC1
Gate Array
Key Switches &
CN1
DDR
DDR unit
MAIN
CN8
CN7
+5D
CN6
CN9
AS
+VCC
CN2
CN6
CN1
+15V
HPR
HPL
Q1,2
Q3,4
IC9
Power Amplifie
IC7
SCK.SDT
Floppy Disk Controller
IC6
D0-D7
256Kbit Pseudo Static RAM
A0-A14
IC5
D0-D7
D0-D7
LCD Controller
A0-A14
IC1
Micro Computer
A0-A23
Address Bus
D0-D15
Data Bus
MIDI OUT
MIDI IN
IC2
SCK.SDT
Gate Array
A0-A23
D0-D15
IC13
1Mbit Dynamic RAM
A0-A7
D0-D16
IC9
A0-A7
D0-D16
Digital Signal Processor
DO1
D0-D7
DI1
DI3
IC40
D/A Converter
R
L
IC54
IC91
R
L
CN3
IC3
PSD0
D0-D11
Tone Generator
AD0-AD20
DT0-DT15
IC4
D0-D11
RSD0
Tone Generator
AD0-AD22
DT0-DT15
JACK
CN5
CN1
AUL
AUR
LOL
LOR
IC23
AD0-AD19
16Mbit Wave ROM
DT0-DT15
IC24
AD0-AD19
16Mbit Wave ROM
DT0-DT15
IC26
AD0-AD19
16Mbit Wave ROM
DT0-DT15
+15V
MIDI IN
MIDI OUT
CN4
CN2
D0-D15
A0-A17
4Mbit Programed ROM
IC15
D0-D15
A0-A17
4Mbit Programed ROM
IC16
D0-D15
A0-A17
4Mbit Programed ROM
IC17
D0-D15
A0-A19
8Mbit Programed ROM
IC18
D0-D16
A0-A9
4Mbit Dynamic RAM
IC20
D0-D7
A0-A14
256Kbit Static RAM
IC22
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10


CN1
LCD
LCD Display
Back Light
INV
CN5
CN3
T1
Inverter
CN4
CPR
Switches & LED's
CN4,5
Q1~5
IC2,3
LED Driver
Buffer
IC1
CN2
Micro Computer
CN1
CPSQ
CN1,2
Switches & LED's
VR1
Main Volume
MKBL
Key Switches & Diodes
CN1
CN2
MKBU
CN5
CN6
IC1
Gate Array
Key Switches & Diodes
CN1
PKB
Switches
CN1
CN3
CN2
EXP
CN1
FOOT SW
CDS
ACP
CN3
JK2
Pedal In
CN1
CN2
S1
Power Switch
PC1
AC IN
T1
Power transformer
CN7
+5D
CN8
CN9
AS
+VCC
CN2
CN8
CN1
+15V
+VCC
IC1,Q5
+15V
+15V Regulator
D7~10
IC2,Q7
−15V
−15V Regulator
CN5
IC9
Q1,2
HPR
HPL
Q3,4
Power Amplifier
CN9
IC13
1Mbit Dynamic RAM
A0-A7
D0-D16
IC9
A0-A7
D0-D16
Digital Signal Processor
DO1
D0-D7
DI1
DI3
IC40
D/A Converter
R
L
IC54
IC91
R
L
IC7,8
Equalizing
IC5,6
Equalizing
IC10
Power Amplifier
R
L
Q14~17
Q18~21
CN10
NW
CN1
CN2
SP6
13cm×8cm
SP5
13cm×8cm
SP4
6.5cm,8 Ω
SP2
20cm,8 Ω
SP1
20cm,8 Ω
SP3
6.5cm,8 Ω
CN3
IC3
PSD0
D0-D11
Tone Generator
AD0-AD20
DT0-DT15
IC4
D0-D11
RSD0
Tone Generator
AD0-AD22
DT0-DT15
CN5
JACK
CN1
AUL
AUR
IC2
JK1
L
JK2
R
AUX IN
LOL
LOR
JK3
L
JK4
R
LINE OUT
JK8
1
JK9
2
HEAD PHONE
+15V
CN3
D1
Power Indicator
IC23
AD0-AD19
16Mbit Wave ROM
DT0-DT15
IC24
AD0-AD19
16Mbit Wave ROM
DT0-DT15
IC26
AD0-AD19
16Mbit Wave ROM
DT0-DT15
D0-D7
A0-A14
256Kbit Static RAM
C22
CN4
MIDI IN
MIDI OUT
CN2
IC1
Photo Coupler
Q1
Q3
JK5
IN
JK6
OUT
JK7
THRU
MIDI
5
6
7
8
9
10
11
12
13
14

MAIN P.C. Board

F

E

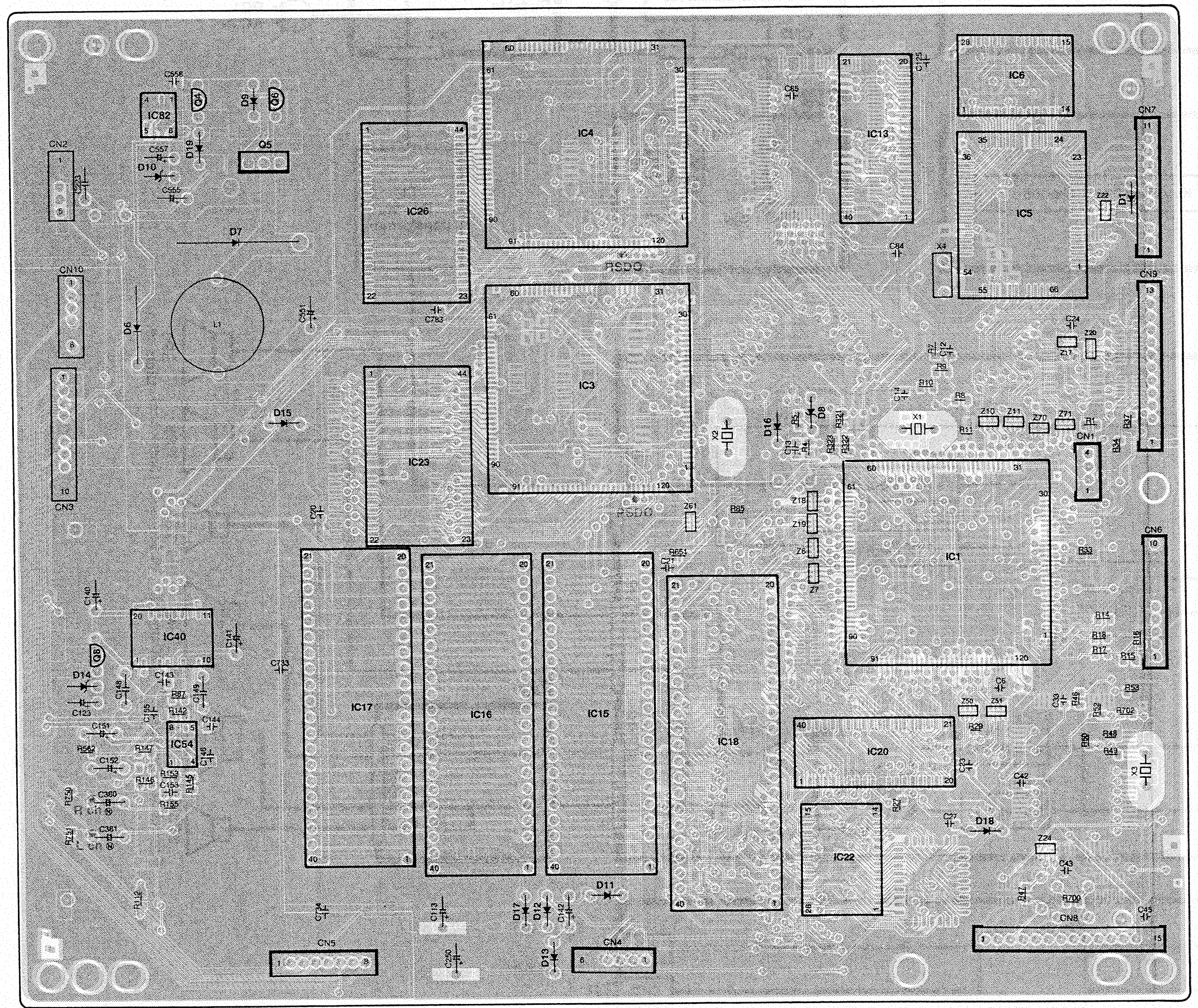
D

C

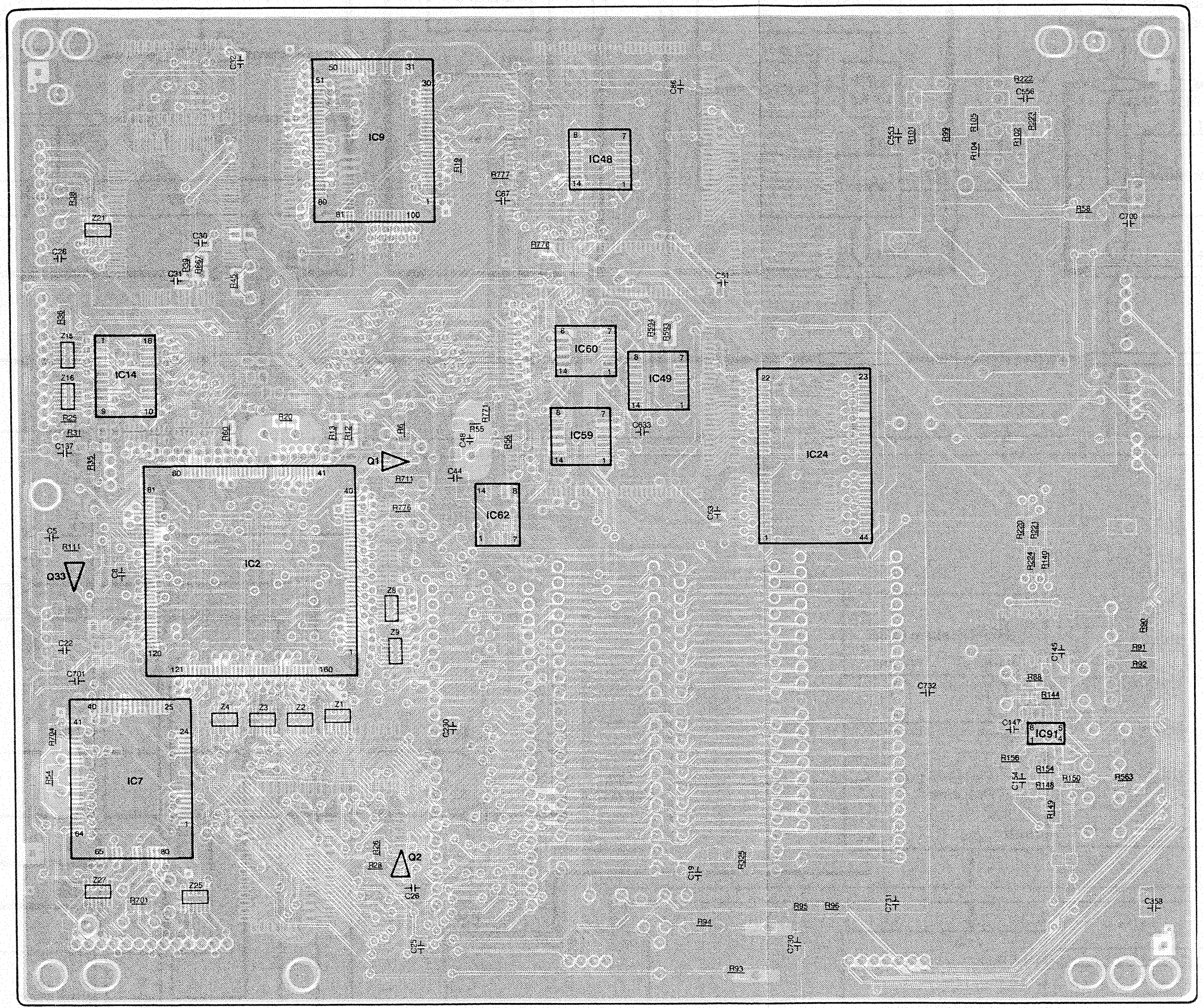
B

A

MAIN (SXPG221111) (COMPONENT SIDE)


IC1
IC3
IC4
IC5
IC6
IC13
IC15
IC16
IC17
IC18
IC20
IC22
IC23
IC26
IC40
IC54
IC82
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
X1
X2
X3
X4
L1
Q5

MAIN (FOIL SIDE)


IC2
IC7
IC9
IC14
IC24
IC48
IC49
IC59
IC60
IC62
IC91
Q1
Q2
Q33

MAIN

NOTES:

- IC'S

IC1:	D7023
IC2:	D6504
IC3, 4:	TC255
IC5:	SED13
IC6:	HM652
IC7:	D7206
IC9:	D6383
IC13:	M5116
IC14:	D74HC
IC15:	QSIGC
IC15-1:	〔HN27
IC16:	QSIGA
IC16-1:	〔HN27
IC17	QSIGC
IC17-1:	〔HN27
IC18:	QSIGH
IC20:	M5M4
IC22:	M5256
IC23:	QSIGH
IC24:	QSIGH
IC26:	QSIGT
IC40:	PCM69
IC48:	D74HC
IC49:	D74HC
IC54:	M5218
IC59:	D74HC
IC60:	D74HC
IC62:	D74HC
IC82:	BA103
IC91:	M5218

- TRANSISTORS

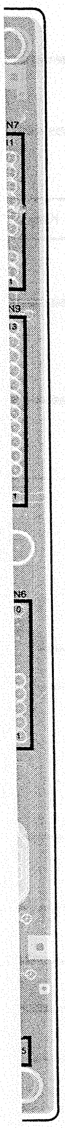
Q1:	2SB70
Q2:	2SD60
Q4:	2SC18
Q5:	2SB94
Q6:	2SC18
Q8:	2SC18
Q33:	2SD60

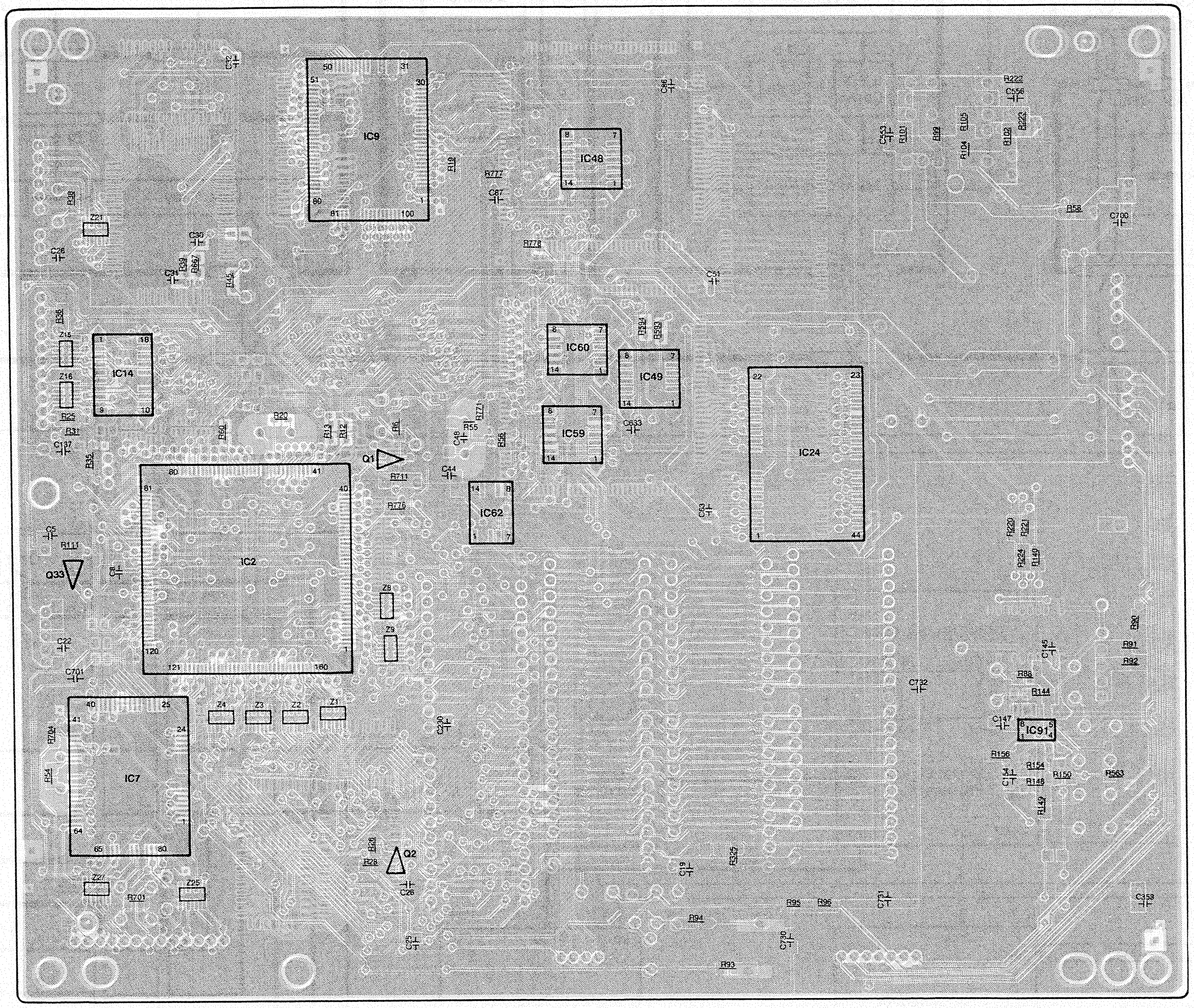
- DIODES

D1:	MA165
D6:	MA206
D7:	SVDG
D8:	MA103
D9:	MA165
D10:	MA405
D11～13:	MA165
D14:	MA405
D15～19	MA165

1 2 3 4 5 6 7 8 9 10

MAIN (FOIL SIDE)





MAIN

NOTES:

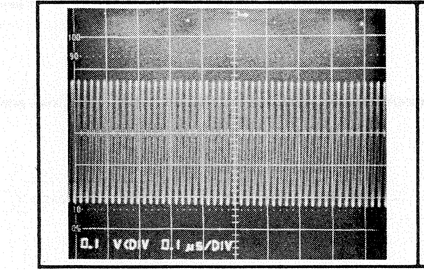
• IC'S	
IC1:	D70236AGD10
IC2:	D65046GD188
IC3, 4:	TC25540AF006
IC5:	SED1330FBA
IC6:	HM65256BLF10
IC7:	D72068GF-3B9
IC9:	D6383GF-3B9
IC13:	M511664-80JS
IC14:	D74HC244GS
IC15:	QSIGCEA5AX
IC15-1:	〔HN27C4096G10〕
IC16:	QSIGAEA5BX
IC16-1:	〔HN27C1024HG〕
IC17	QSIGCEA5CX
IC17-1:	〔HN27C4096G10〕
IC18:	QSIGH3C08E64
IC20:	M5M44170AJ8S
IC22:	M5256BFP85LL
IC23:	QSIGH3C16DD7
IC24:	QSIGH3C16DD8
IC26:	QSIGT3C16021
IC40:	PCM69AU
IC48:	D74HC74GS
IC49:	D74HC393GS
IC54:	M5218AFP
IC59:	D74HC08GS
IC60:	D74HC32GS
IC62:	D74HC04GS
IC82:	BA10393F
IC91:	M5218AFP
• TRANSISTORS	
Q1:	2SB709AR
Q2:	2SD601AQ
Q4:	2SC1815GR
Q5:	2SB946P
Q6:	2SC1815GR
Q8:	2SC1815GR
Q33:	2SD601AQ
• DIODES	
D1:	MA165
D6:	MA2062LF
D7:	SVDGERC9102
D8:	MA1030
D9:	MA165
D10:	MA4051
D11～13:	MA165
D14:	MA4056
D15～19	MA165

■ Measuring Condition

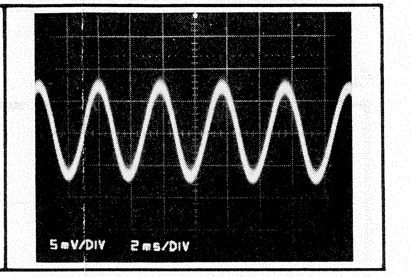
Set the initial setting mode (Refer to page Ⅰ-7)

- SOUND .... LOWER TAB ORGAN 8′
- TREMOLO .... ON
- KEYBOARD C3
- RHYTHM.. Start
- TEMPO.. ♩ =120

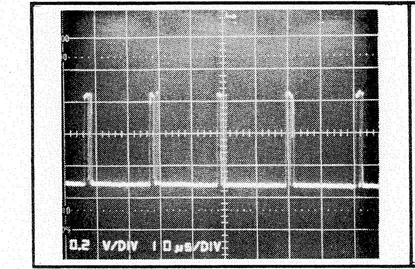
X1



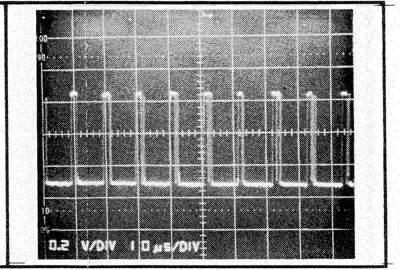
Rch, Lch



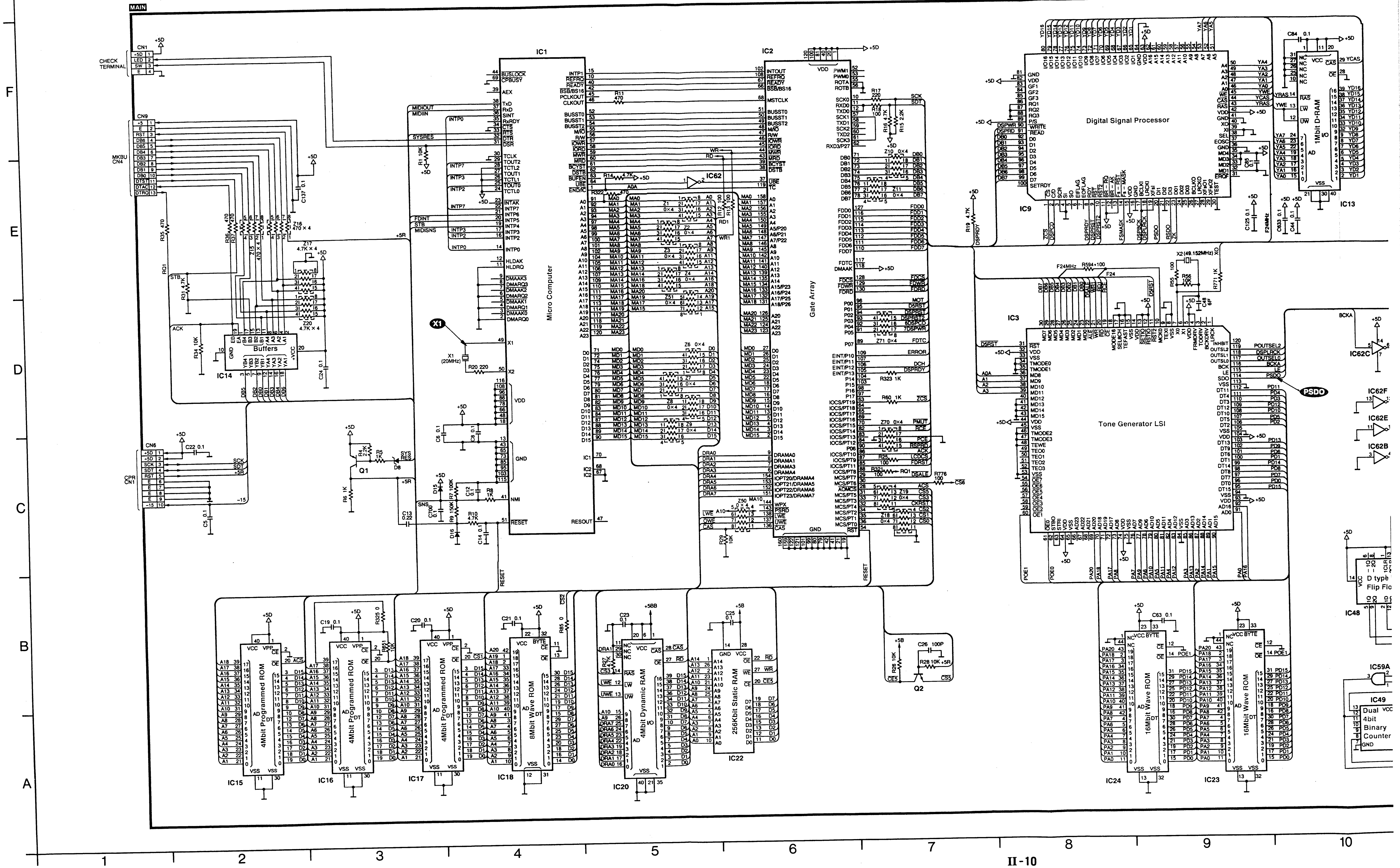
RSD0

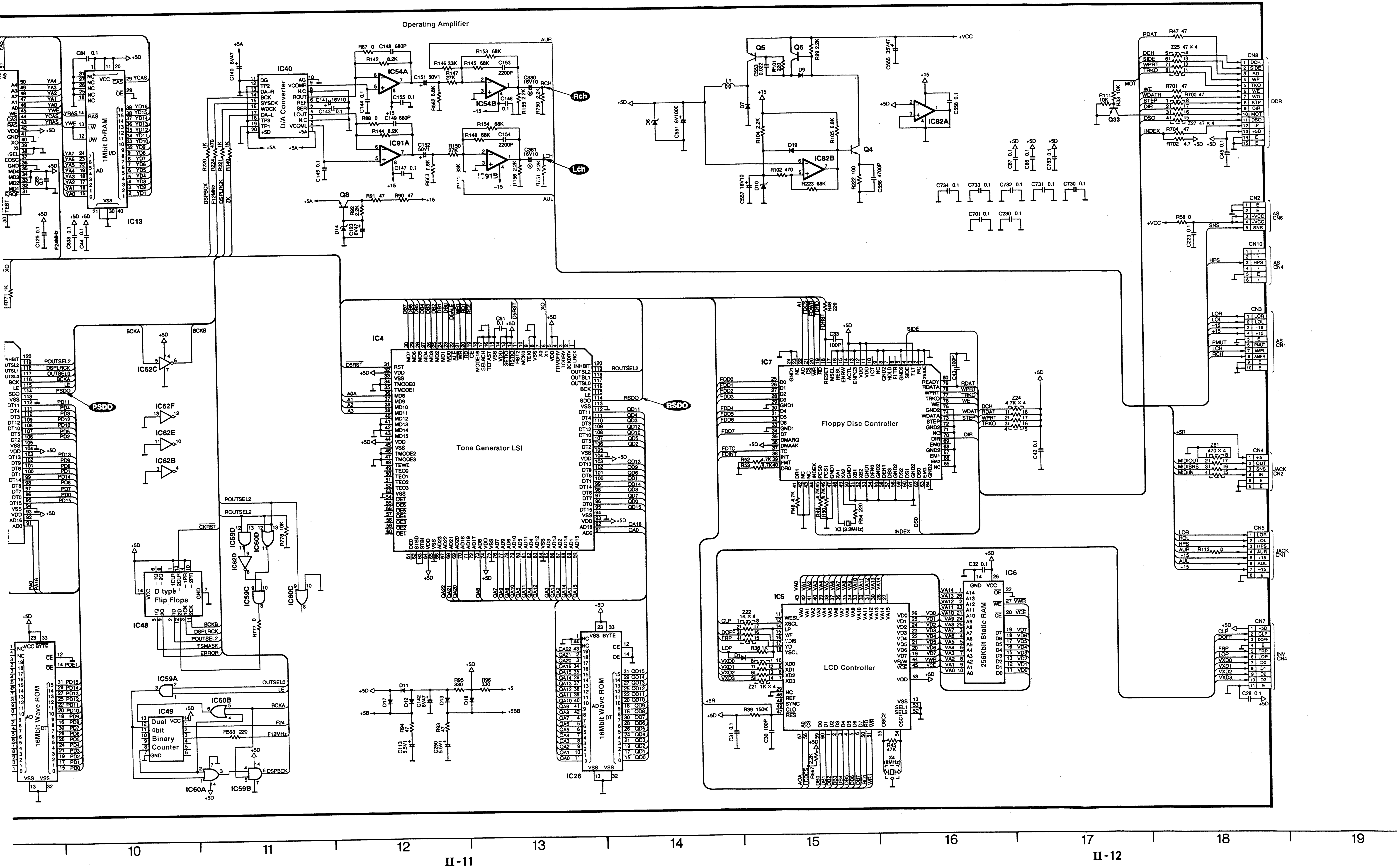


PSD0



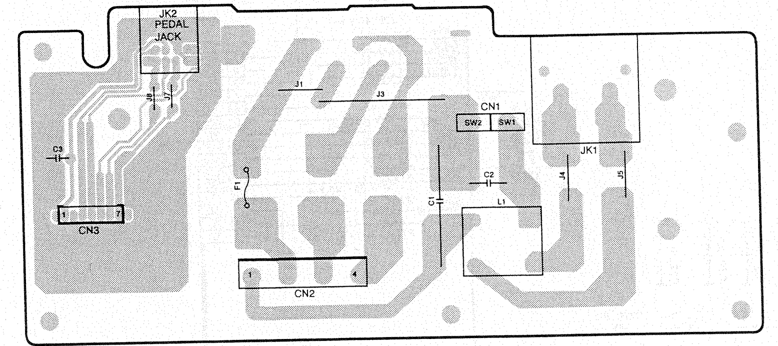
MAIN P.C. Diagram


MAIN
CHECK TERMINAL
CN1
MKBU CN4
CN9
CPR CN1
CN6
IC1
Micro Computer
IC2
Gate Array
IC3
Tone Generator LSI
IC9
Digital Signal Processor
IC13
1Mbit D-RAM
IC14
Buffers
IC15
4Mbit Programmed ROM
IC16
4Mbit Programmed ROM
IC17
4Mbit Programmed ROM
IC18
8Mbit Wave ROM
IC20
4Mbit Dynamic RAM
IC22
256Kbit Static RAM
IC23
16Mbit Wave ROM
IC24
16Mbit Wave ROM
IC48
D type Flip Flo
IC49
Dual 4bit Binary Counter
IC59A
IC62
IC62B
IC62C
IC62E
IC62F
Q1
Q2
X1
X1 (20MHz)
X2 (49.152MHz)
PSDO
+5D
+5R
+5B
F24MHz
A
B
C
D
E
F
1
2
3
4
5
6
7
8
9
10


Operating Amplifier
IC40
D/A Converter
IC54A
IC54B
IC91A
IC91B
Rch
Lch
AUR
AUL
Q8
Q5
Q6
Q4
IC82A
IC82B
L1
+VCC
+5D
+15
-15
+5A
1Mbit D-RAM
IC13
F24MHz
IC4
Tone Generator LSI
PSDO
RSDO
IC62C
IC62F
IC62E
IC62B
BCKA
BCKB
POUTSEL2
ROUTSEL2
CKRST
IC59D
IC60D
IC62D
IC59C
IC60C
IC48
D type Flip Flops
BCKB
DSPLRCK
POUTSEL2
FSMASK
ERROR
IC59A
IC60B
IC49
Dual 4bit Binary Counter
OUTSEL0
LE
BCKA
F24
F12MHz
R593 220
DSPBCK
IC60A
IC59B
16Mbit Wave ROM
IC26
16Mbit Wave ROM
+5
+5B
+5BB
R95 330
R96 330
IC7
Floppy Disc Controller
X3 (3.2MHz)
INDEX
DSO
SIDE
Z24 4.7K × 4
IC5
LCD Controller
IC6
256Kbit Static RAM
X4 (8MHz)
R45 47K
Z21 1K × 4
Z22 1K × 4
R39 150K
CN8
DDR
DCH
SIDE
WPRT
TRKO
WE
WDATR
STEP
DIR
DSO
INDEX
R47 47
Z25 47 × 4
Z27 47 × 4
R701 47
R700 47
R704 47
R702 4.7
R111 10K
R33 10K
MOT
Q33
CN2
AS CN6
R58 0
SNS
CN10
AS CN4
HPS
CN3
AS CN1
LOR
LOL
PMUT
LCH
RCH
CN4
JACK CN2
Z61 470 × 4
MIDIOUT
MIDISNS
MIDIIN
CN5
JACK CN1
R112 0
AUR
AUL
CN7
INV CN4
CLP
DOFF
FRP
LOP
VXD0
VXD1
VXD2
VXD3
C28 0.1
10
11
12
13
14
15
16
17
18
19

AS/ACP/NW

ACP **M** **MC** **XM** (SXPG221421B)


JK2
PEDAL
JACK
J1
J3
CN1
SW2
SW1
JK1
J4
J5
C3
F1
C1
C2
L1
CN3
CN2

ACP

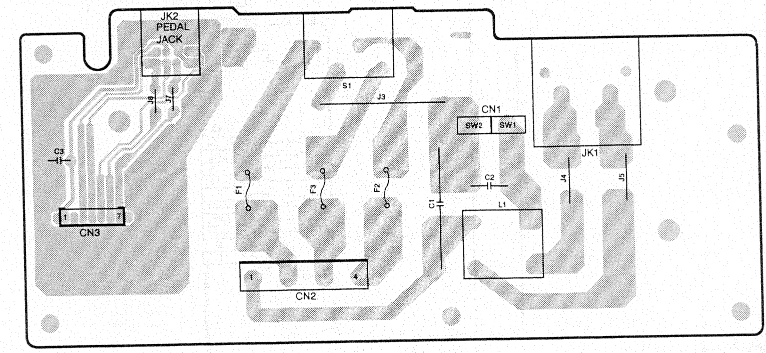
NOTE:

- FUSE

F1: XBA1C63NU100

XR (SXPG221451B)

ACP **X** **XD** **XT** **XS** (SXPG221431B)


JK2
PEDAL
JACK
S1
J3
CN1
SW2
SW1
JK1
J4
J5
C3
F1
F3
F2
C1
C2
L1
CN3
CN2

ACP

NOTE:

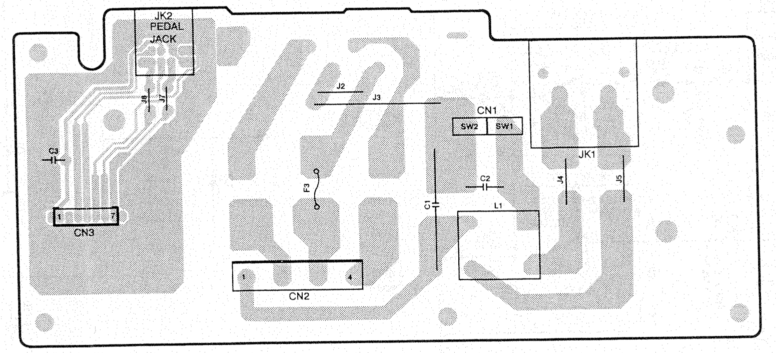
- FUSES

F1: XBA2C31TB0

F2, 3: XBA2C20TB0

Others (SXPG221411B)

ACP **XL** (SXPG221441B)


JK2
PEDAL
JACK
J2
J3
CN1
SW2
SW1
JK1
J4
J5
C3
F3
C1
C2
L1
CN3
CN2

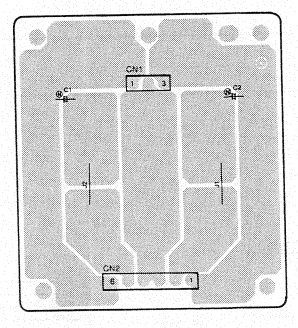
ACP

NOTE:

- FUSE

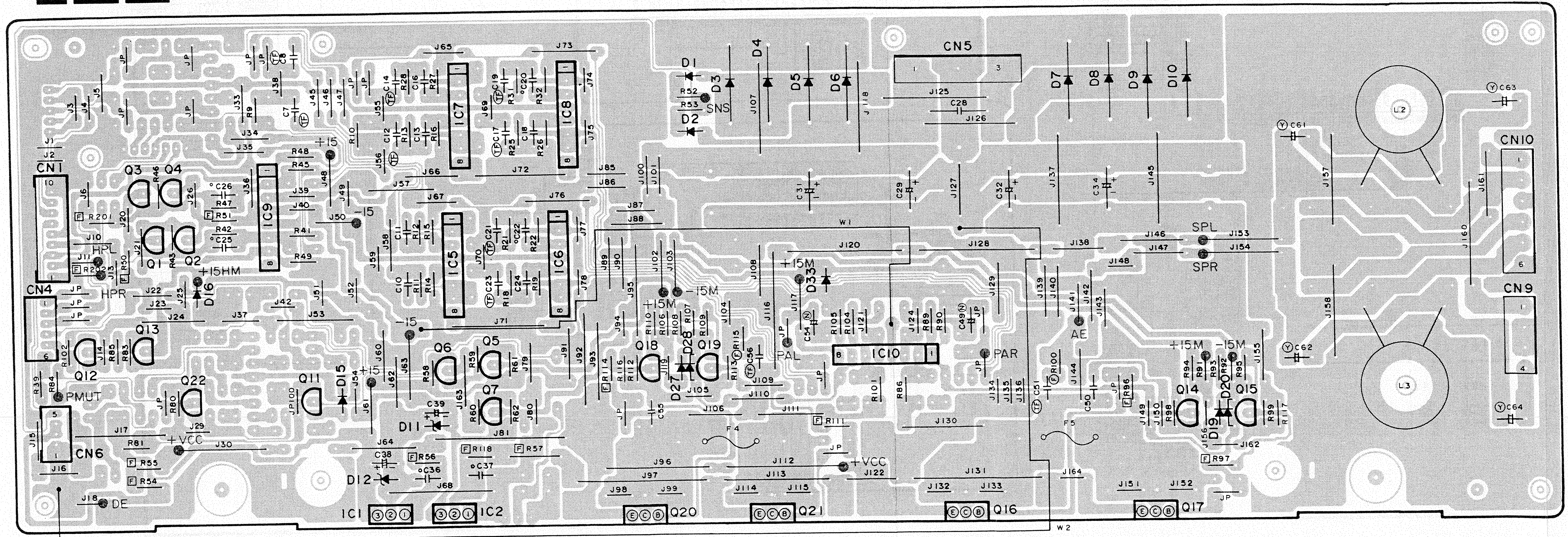
F3: XBA2C20TB0

NW (SXPG221411C)


CN1
C1
C2
CN2

Others (SXPG2170101)

AS **M** **MC** **XM** (SXPG2170111)


CN1
CN4
CN5
CN6
CN9
CN10
IC1
IC2
IC5
IC6
IC7
IC8
IC9
IC10
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q11
Q12
Q13
Q14
Q15
Q16
Q17
Q18
Q19
Q20
Q21
Q22
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D15
D16
D19
D20
D27
D28
D33
L2
L3
F4
F5
SNS
SPL
SPR
PAR
PAL
AE
HPL
HPR
PMUT
DE
+15M
-15M
+15HM
+15
-15
+VCC
W1
W2

AS

NOTES:

- IC'S

IC1:	M5F78M15L
IC2:	M5F79M15L
IC5~10:	M5218AL

- TRANSISTORS

Q1:	2SC3940ARS
Q2:	2SA1534AR
Q3:	2SC3940ARS
Q4:	2SA1534AR
Q5, 6:	2SA1015-GR
Q7, 11, 12:	2SC1815GR
Q13:	2SA1015-GR
Q14:	2SC1815GR
Q15:	2SA1015-GR
Q16:	2SB946P
Q17:	2SD1271P
Q18:	2SC1815GR
Q19:	2SA1015-GR
Q20:	2SB946P
Q21:	2SD1271P
Q22:	2SA1015-GR

- DIODES

D1, 2:	SVDGERA1502
D3~10:	SVDS3V20
D11, 12:	MA4180
D15:	MA165
D16:	EK04
D19, 20, 27, 28:	MA29WA
D33:	EK04

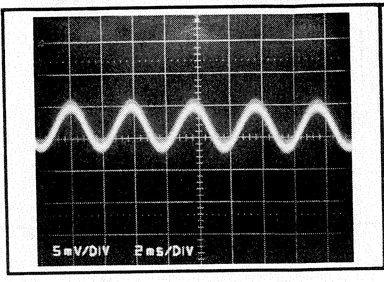
- FUSES

F4, 5 **M** **MC** **XM**:	XBA1C25NU100
F4, 5 Others:	XBA2C20TB0

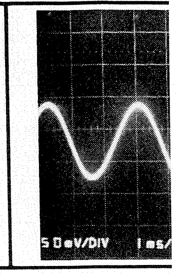
■ Waveform measurement

1. Activate the initial setting method. (Refer t
2. Set the E. organ to reference required mode
   - LOWER ORCHESTRAL CONDUCTOR .....
   - LOWER TAB & ORGAN ....
   - TREMOLO..
   - DIGITAL REVERB ....
3. Key..

PAR, PAL



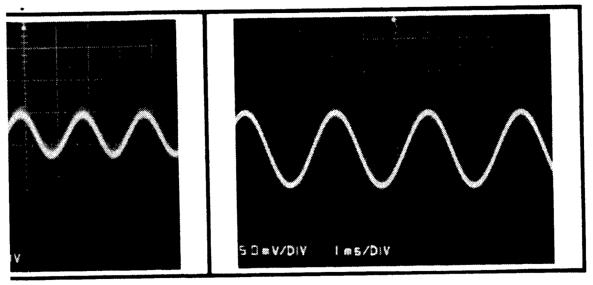
SPL, SPR



neasurement

initial setting method. (Refer to page I -7)
gan to reference required mode as followings.
CHESTRAL CONDUCTOR..... TAB & ORGAN
B & ORGAN .... FLUTE 8′ : ON
.... OFF
EVERB...................................... ALL OFF
.... C3

SPL, SPR



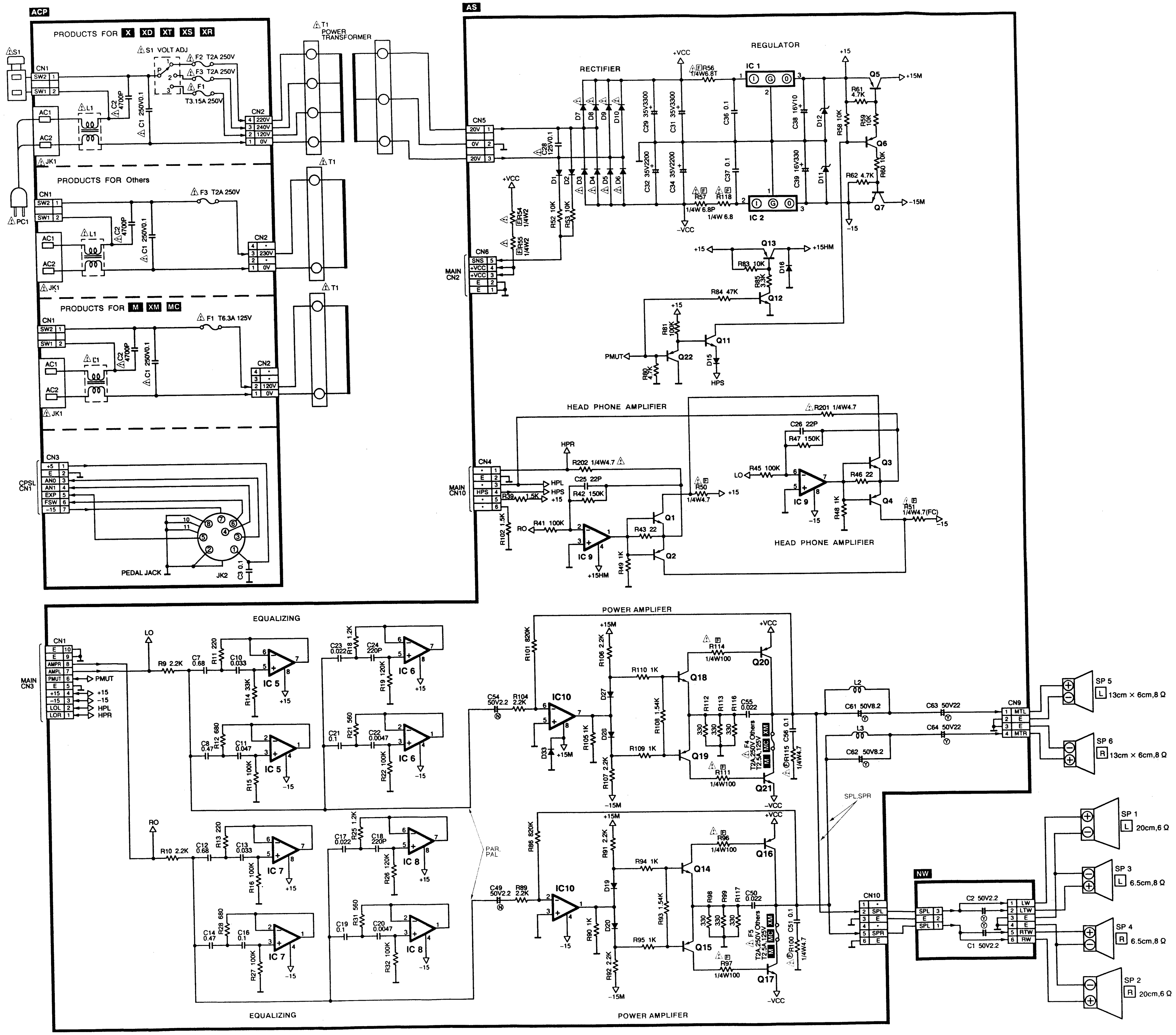
M15L
M15L
AL

40ARS
34AR
40ARS
34AR
15-GR
15GR
15-GR
15GR
15-GR
6P
71P
15GR
15-GR
6P
71P
15-GR

ERA1502
3V20
30

WA

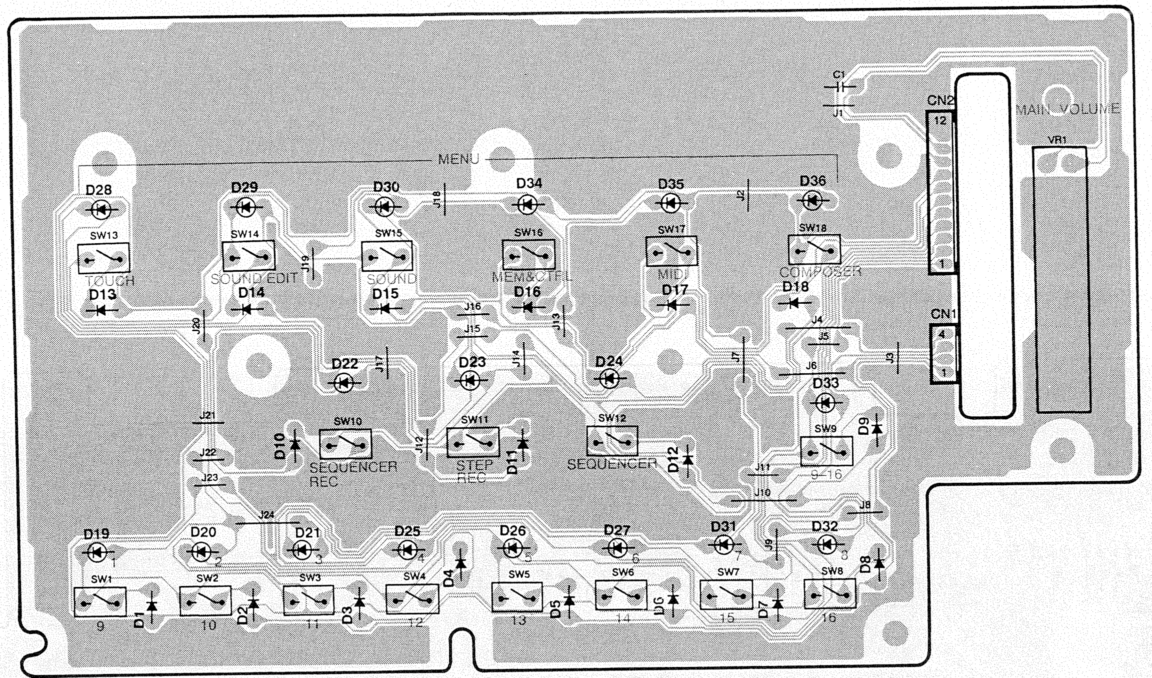
25NU100
20TB0



ACP
PRODUCTS FOR X XD XT XS XR
S1 VOLT ADJ
F2 T2A 250V
F3 T2A 250V
F1 T3.15A 250V
CN1
SW2
SW1
AC1
AC2
L1
C2 4700P
C1 250V0.1
CN2
220V
240V
120V
0V
JK1
PC1
PRODUCTS FOR Others
F3 T2A 250V
230V
PRODUCTS FOR M XM MC
F1 T6.3A 125V
CN3
CPSL CN1
+5
E
ANO
AN1
EXP
FSW
-15
PEDAL JACK
JK2
C3 0.1
T1 POWER TRANSFORMER
AS
RECTIFIER
REGULATOR
CN5
20V
0V
C28 125V0.1
D1 D2 D3 D4 D5 D6 D7 D8 D9 D10
C29 35V3300
C31 35V3300
C32 35V2200
C34 35V2200
R56 1/4W6.8T
R57 1/4W 6.8P
R118 1/4W 6.8
IC 1
IC 2
C36 0.1
C37 0.1
C38 16V10
C39 16V330
D11 D12
R58 10K
R59 10K
R60 10K
R61 4.7K
R62 4.7K
Q5 Q6 Q7
+VCC
-VCC
+15
-15
+15M
-15M
+15HM
CN6
MAIN CN2
SNS
R52 10K
R53 10K
R54 1/4W2
R55 1/4W2
Q13
R83 10K
R85 3.3K
D16
R84 47K
Q12
R81 10K
Q11
PMUT
Q22
R80 4.7K
D15
HPS
HEAD PHONE AMPLIFIER
R201 1/4W4.7
C26 22P
R47 150K
R45 100K
LO
IC 9
R46 22
Q3 Q4
R48 1K
R51 1/4W4.7(FC)
CN4
MAIN CN10
HPR
R202 1/4W4.7
C25 22P
HPL
HPS
R42 150K
R39 1.5K
R50 1/4W4.7
R41 100K
RO
R102 1.5K
R43 22
Q1 Q2
R49 1K
HEAD PHONE AMPLIFIER
EQUALIZING
MAIN CN3
AMPR
AMPL
PMUT
LOL
LOR
HPL
HPR
R9 2.2K
C7 0.68
R11 220
C10 0.033
IC 5
R14 33K
C8 0.47
R12 680
C11 0.047
R15 100K
C23 0.022
R18 1.2K
C24 220P
IC 6
R19 120K
C21 0.1
R21 560
C22 0.0047
R22 100K
R10 2.2K
C12 0.68
R13 220
C13 0.033
IC 7
R16 100K
C14 0.47
R28 680
C16 0.1
R27 100K
C17 0.022
R25 1.2K
C18 220P
IC 8
R26 120K
C19 0.1
R31 560
C20 0.0047
R32 100K
EQUALIZING
PAR, PAL
POWER AMPLIFER
R101 820K
C54 50V2.2
R104 2.2K
IC10
R106 2.2K
D27
D20
D33
R105 1K
R107 2.2K
R110 1K
R109 1K
R108 1.54K
R114 1/4W100
R111 1/4W100
Q18 Q19 Q20 Q21
R112 R113 R116 330
C55 0.022
F4 T2A 250V Others T2.5A 125V M XM MC
R115 1/4W4.7
C56 0.1
L2 L3
C61 50V8.2
C62 50V8.2
C63 50V22
C64 50V22
CN9
MTL
E
MTR
SP 5 L 13cm × 6cm,8 Ω
SP 6 R 13cm × 6cm,8 Ω
SPL.SPR
R86 820K
C49 50V2.2
R89 2.2K
R91 2.2K
R92 2.2K
R90 1K
D19
R94 1K
R95 1K
R93 1.54K
R96 1/4W100
R97 1/4W100
Q14 Q15 Q16 Q17
R98 R99 R117 330
C50 0.022
F5 T2A 250V Others T2.5A 125V M XM MC
R100 1/4W4.7
C51 0.1
POWER AMPLIFER
CN10
SPL
SPR
NW
C2 50V2.2
C1 50V2.2
LW
LTW
RTW
RW
SP 1 L 20cm,6 Ω
SP 3 L 6.5cm,8 Ω
SP 4 R 6.5cm,8 Ω
SP 2 R 20cm,6 Ω

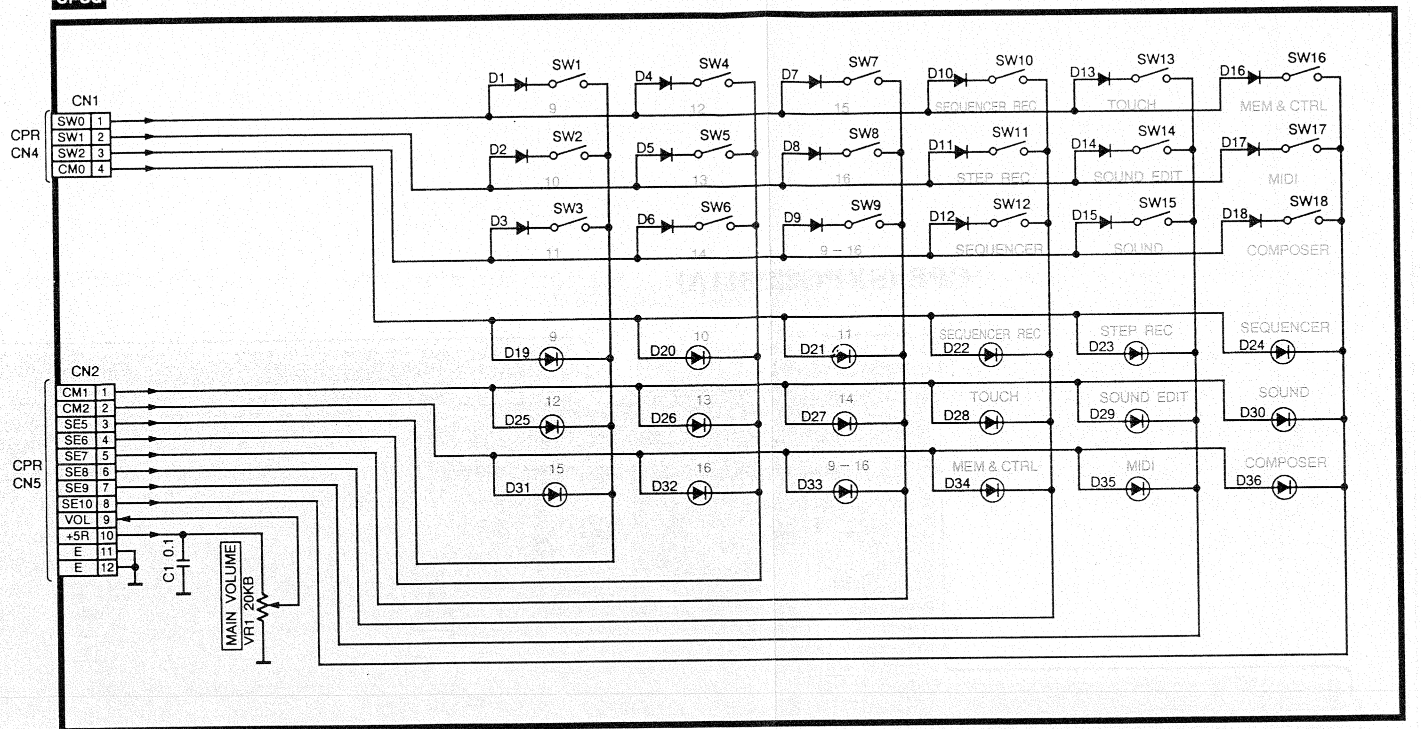
CPSQ/VSC

CPSQ (SXPG221211B)



MENU
C1
J1
CN2
MAIN VOLUME
VR1
CN1
D28
D29
D30
D34
D35
D36
SW13
SW14
SW15
SW16
SW17
SW18
TOUCH
SOUND EDIT
SOUND
MEM&CTRL
MIDI
COMPOSER
D13
D14
D15
D16
D17
D18
D22
D23
D24
D33
SW10
SW11
SW12
SW9
SEQUENCER REC
STEP REC
SEQUENCER
9 – 16
D10
D11
D12
D9
D19
D20
D21
D25
D26
D27
D31
D32
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
D1
D2
D3
D4
D5
D6
D7
D8
9
10
11
12
13
14
15
16

CPSQ



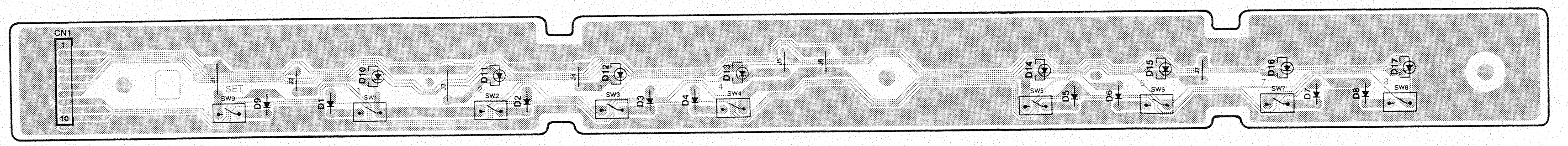
CPR CN4
CN1
SW0 1
SW1 2
SW2 3
CM0 4
D1 SW1 9
D4 SW4 12
D7 SW7 15
D10 SW10 SEQUENCER REC
D13 SW13 TOUCH
D16 SW16 MEM & CTRL
D2 SW2 10
D5 SW5 13
D8 SW8 16
D11 SW11 STEP REC
D14 SW14 SOUND EDIT
D17 SW17 MIDI
D3 SW3 11
D6 SW6 14
D9 SW9 9 – 16
D12 SW12 SEQUENCER
D15 SW15 SOUND
D18 SW18 COMPOSER
CPR CN5
CN2
CM1 1
CM2 2
SE5 3
SE6 4
SE7 5
SE8 6
SE9 7
SE10 8
VOL 9
+5R 10
E 11
E 12
9 D19
10 D20
11 D21
SEQUENCER REC D22
STEP REC D23
SEQUENCER D24
12 D25
13 D26
14 D27
TOUCH D28
SOUND EDIT D29
SOUND D30
15 D31
16 D32
9 – 16 D33
MEM & CTRL D34
MIDI D35
COMPOSER D36
C1 0.1
MAIN VOLUME VR1 20KB

CPSQ

NOTE:

- DIODES
  - D1~18: MA165
  - D19~36: LN382G

VSC (SXPG221311C)



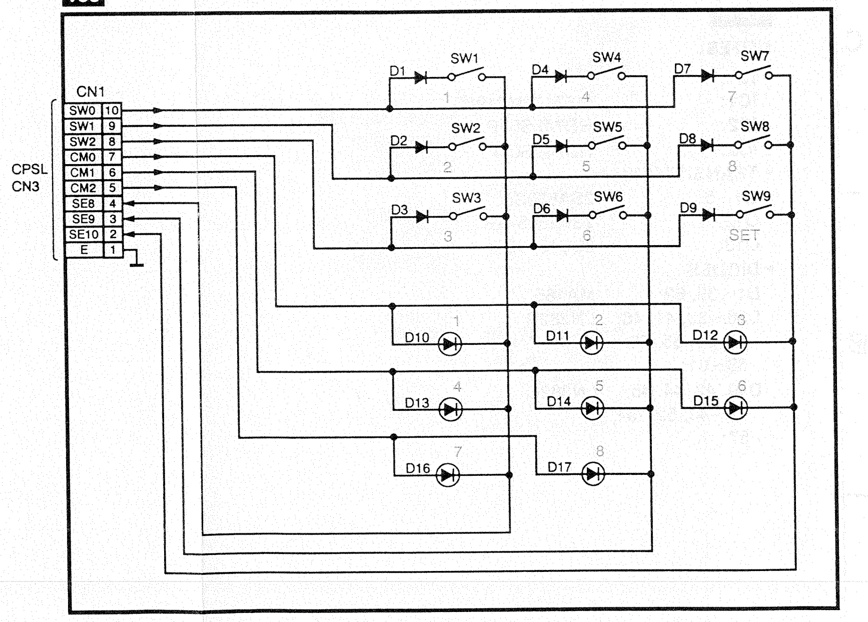
CN1
SET
SW9
D9
D10
D1
SW1
D11
SW2
D2
D12
SW3
D3
D13
SW4
D4
D14
D5
D6
D15
SW5
D16
SW7
D7
D17
D8
SW8

VSC

NOTE:

- DIODES
  - D1~9: MA165
  - D10~17: SEL6210S

VSC



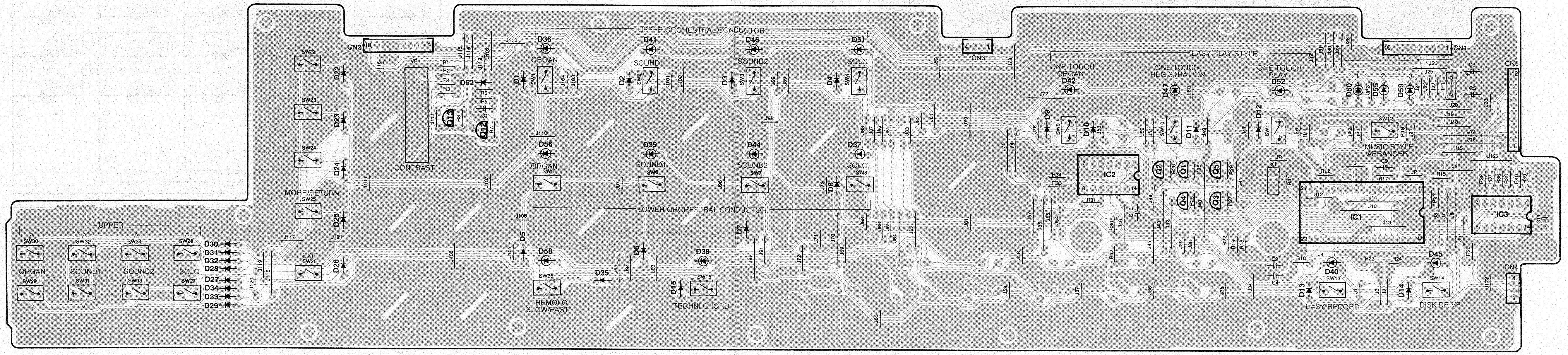
CPSL CN3
CN1
SW0 10
SW1 9
SW2 8
CM0 7
CM1 6
CM2 5
SE8 4
SE9 3
SE10 2
E 1
D1 SW1 1
D4 SW4 4
D7 SW7 7
D2 SW2 2
D5 SW5 5
D8 SW8 8
D3 SW3 3
D6 SW6 6
D9 SW9 SET
1 D10
2 D11
3 D12
4 D13
5 D14
6 D15
7 D16
8 D17

F E D C B A

1 2 3 4 5 6 7 8 9

CPR P.C. Board

CPR (SXPG221311A)


UPPER ORCHESTRAL CONDUCTOR
LOWER ORCHESTRAL CONDUCTOR
CN1
CN2
CN3
CN4
CN5
VR1
CONTRAST
MORE/RETURN
EXIT
UPPER
ORGAN
SOUND1
SOUND2
SOLO
TREMOLO SLOW/FAST
TECHNI CHORD
EASY PLAY STYLE
ONE TOUCH ORGAN
ONE TOUCH REGISTRATION
ONE TOUCH PLAY
MUSIC STYLE ARRANGER
EASY RECORD
DISK DRIVE
IC1
IC2
IC3
X1

CPR

NOTES:

- IC'S

IC1:	M37471M2196S
IC2:	HD74LS07P
IC3:	HD74LS07P

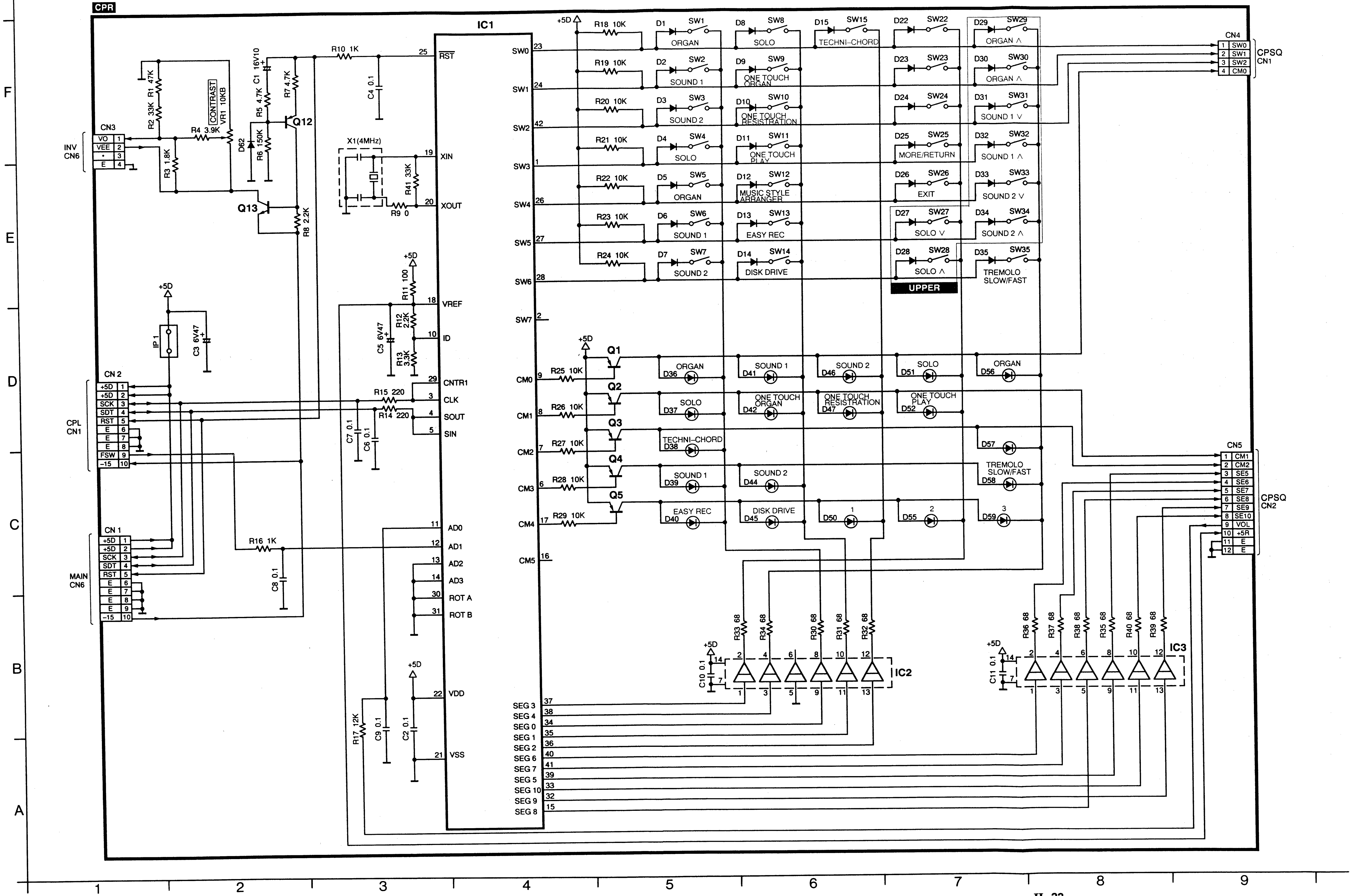
- TRANSISTORS

Q1~5:	2SA830SB
Q12:	2SA1015-GR
Q13:	2SC1815GR

- DIODES

D1~35, 62:	MA165
D36~39, 41, 46, 50, 51, 55, 56, 58~61:	LN282R
D40, 42, 44, 45, 47~49, 52~54, 57:	LN382G

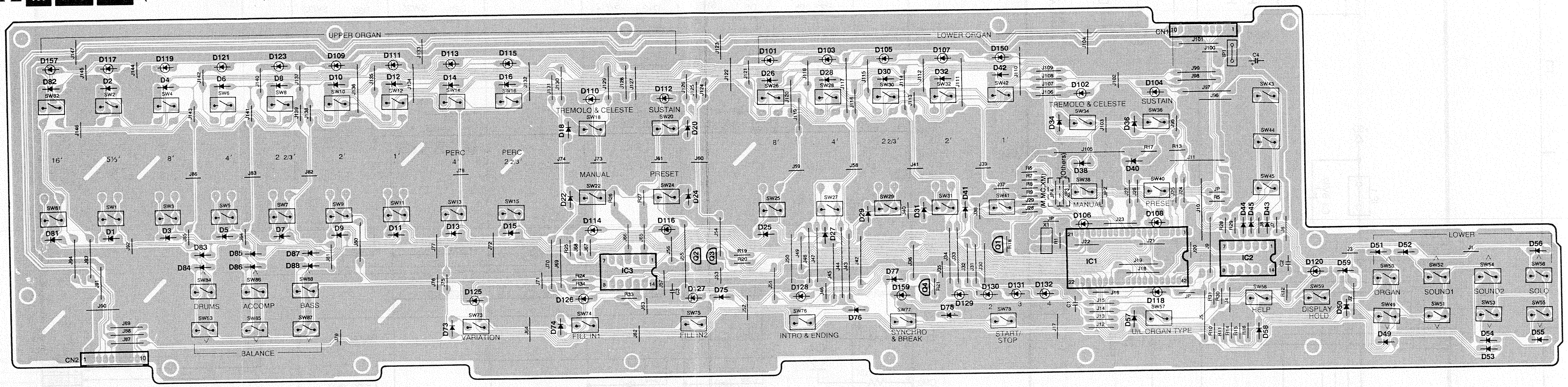
CPR P.C. Diagram


CPR
IC1
RST
XIN
XOUT
VREF
ID
CNTR1
CLK
SOUT
SIN
AD0
AD1
AD2
AD3
ROT A
ROT B
VDD
VSS
SW0
SW1
SW2
SW3
SW4
SW5
SW6
SW7
CM0
CM1
CM2
CM3
CM4
CM5
SEG 3
SEG 4
SEG 0
SEG 1
SEG 2
SEG 6
SEG 7
SEG 5
SEG 10
SEG 9
SEG 8
R1 47K
R2 33K
R3 1.8K
R4 3.9K
CONTRAST VR1 10KB
C1 16V10
R5 4.7K
R6 150K
D62
R7 4.7K
Q12
Q13
R8 2.2K
R10 1K
C4 0.1
X1(4MHz)
R41 33K
R9 0
INV CN6
CN3
VO
VEE
E
+5D
IP 1
C3 6V47
R11 100
R12 2.2K
C5 6V47
R13 3.3K
R15 220
R14 220
C7 0.1
C6 0.1
CPL CN1
CN 2
+5D
SCK
SDT
RST
FSW
-15
MAIN CN6
CN 1
R16 1K
C8 0.1
R17 12K
C9 0.1
C2 0.1
R18 10K
R19 10K
R20 10K
R21 10K
R22 10K
R23 10K
R24 10K
D1 SW1 ORGAN
D2 SW2 SOUND 1
D3 SW3 SOUND 2
D4 SW4 SOLO
D5 SW5 ORGAN
D6 SW6 SOUND 1
D7 SW7 SOUND 2
D8 SW8 SOLO
D9 SW9 ONE TOUCH ORGAN
D10 SW10 ONE TOUCH RESISTRATION
D11 SW11 ONE TOUCH PLAY
D12 SW12 MUSIC STYLE ARRANGER
D13 SW13 EASY REC
D14 SW14 DISK DRIVE
D15 SW15 TECHNI-CHORD
D22 SW22
D23 SW23
D24 SW24
D25 SW25 MORE/RETURN
D26 SW26 EXIT
D27 SW27 SOLO ∨
D28 SW28 SOLO ∧
UPPER
D29 SW29 ORGAN ∧
D30 SW30 ORGAN ∧
D31 SW31 SOUND 1 ∨
D32 SW32 SOUND 1 ∧
D33 SW33 SOUND 2 ∨
D34 SW34 SOUND 2 ∧
D35 SW35 TREMOLO SLOW/FAST
CN4
SW0
SW1
SW2
CM0
CPSQ CN1
Q1
Q2
Q3
Q4
Q5
R25 10K
R26 10K
R27 10K
R28 10K
R29 10K
ORGAN D36
SOLO D37
TECHNI-CHORD D38
SOUND 1 D39
EASY REC D40
SOUND 1 D41
ONE TOUCH ORGAN D42
SOUND 2 D44
DISK DRIVE D45
SOUND 2 D46
ONE TOUCH RESISTRATION D47
D50 1
SOLO D51
ONE TOUCH PLAY D52
D55 2
ORGAN D56
D57
TREMOLO SLOW/FAST D58
D59 3
CN5
CM1
CM2
SE5
SE6
SE7
SE8
SE9
SE10
VOL
+5R
E
CPSQ CN2
R33 68
R34 68
R30 68
R31 68
R32 68
C10 0.1
IC2
R36 68
R37 68
R38 68
R35 68
R40 68
R39 68
C11 0.1
IC3
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9

CPL P.C. Board

Others **(SXPG221311B)**

CPL **M** **MC** **XM** **(SXPG221321B)**


UPPER ORGAN
LOWER ORGAN
CN1
CN2
IC1
IC2
IC3
Q1
Q2
Q3
Q4
16'
5⅓'
8'
4'
2 2/3'
2'
1'
PERC 4'
PERC 2 2/3'
TREMOLO & CELESTE
SUSTAIN
MANUAL
PRESET
DRUMS
ACCOMP
BASS
BALANCE
VARIATION
FILL IN1
FILL IN2
INTRO & ENDING
SYNCHRO & BREAK
START/ STOP
U/L ORGAN TYPE
HELP
DISPLAY HOLD
LOWER
ORGAN
SOUND1
SOUND2
SOLO

CPL

NOTES:

- IC'S
  - IC1: M37471M2196S
  - IC2, 3: HD74LS07P
- TRANSISTORS
  - Q1~4: 2SA830SB
- DIODES
  - D1~16, 18, 20, 22, 24~32, 34, 36, 38, 40~45, 49~59, 73~78, 81~88: MA165
  - D101~105, 107, 109~113, 115, 117, 119~121, 123, 125~129, 150, 157, 159: LN282R
  - D106, 108, 114, 116, 118, 130~132: LN382G

F

E

D

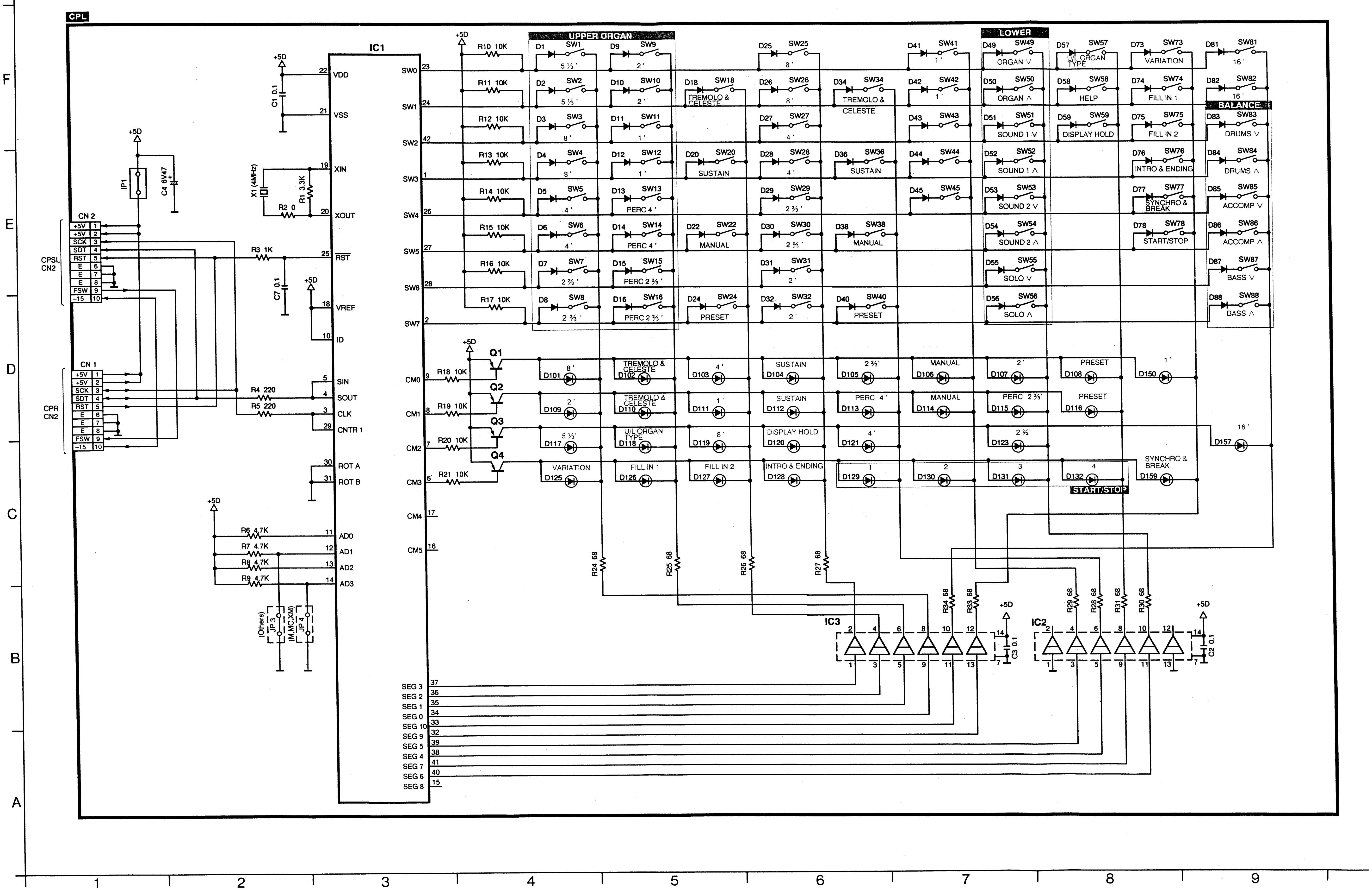
C

B

A

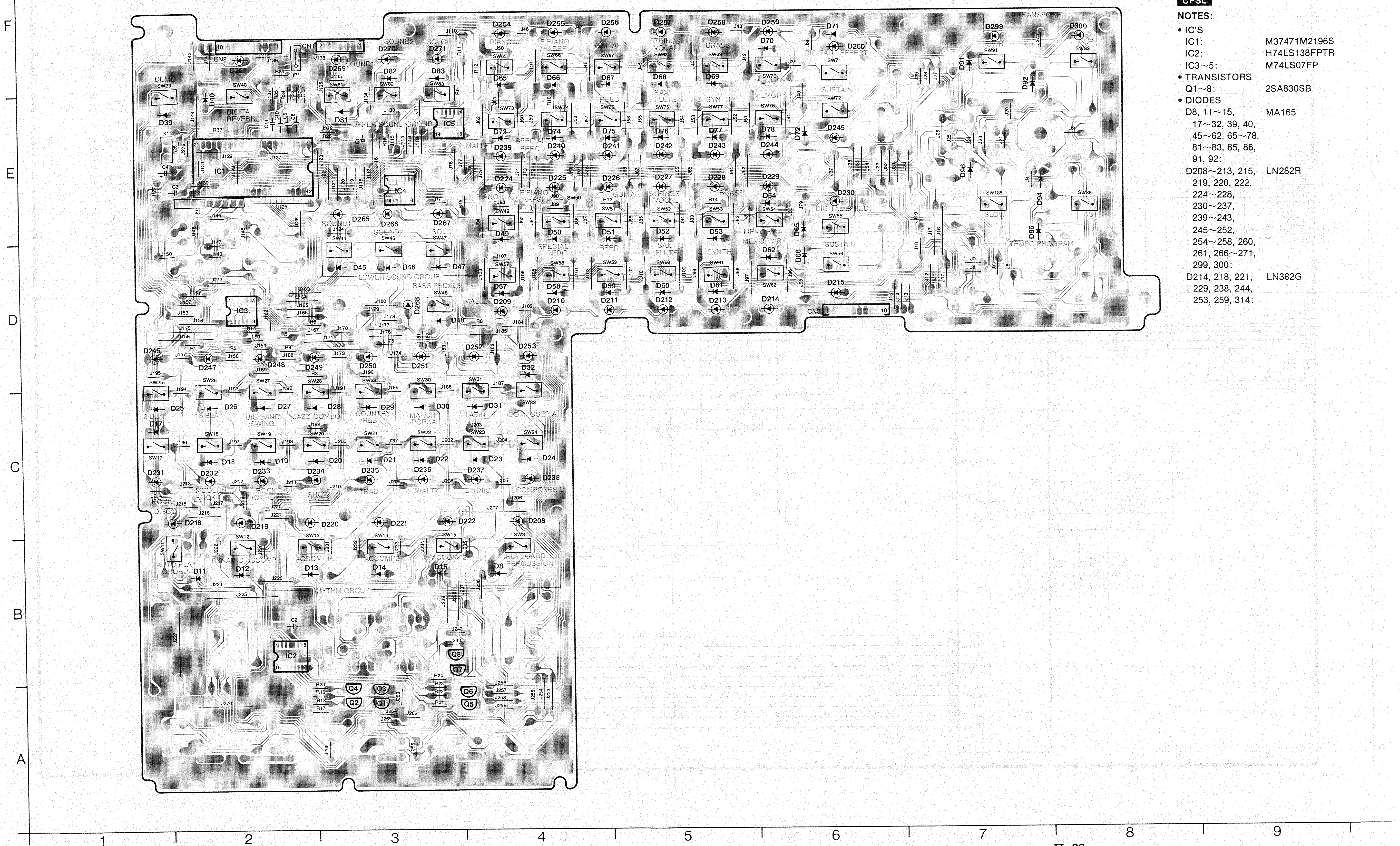
1 2 3 4 5 6 7 8 9

CPL P.C. Diagram


CPL
IC1
UPPER ORGAN
LOWER
BALANCE
START/STOP
CN 2
CPSL CN2
CN 1
CPR CN2
+5V
SCK
SDT
RST
E
FSW
-15
IP1
C4 6V47
+5D
C1 0.1
VDD
VSS
X1 (4MHz)
R1 3.3K
R2 0
XIN
XOUT
R3 1K
RST
C7 0.1
VREF
ID
R4 220
R5 220
SIN
SOUT
CLK
CNTR 1
ROT A
ROT B
R6 4.7K
R7 4.7K
R8 4.7K
R9 4.7K
AD0
AD1
AD2
AD3
JP 3 (Others)
JP 4 (M,MC,XM)
SW0
SW1
SW2
SW3
SW4
SW5
SW6
SW7
CM0
CM1
CM2
CM3
CM4
CM5
SEG 3
SEG 2
SEG 1
SEG 0
SEG 10
SEG 9
SEG 5
SEG 4
SEG 7
SEG 6
SEG 8
R10 10K
R11 10K
R12 10K
R13 10K
R14 10K
R15 10K
R16 10K
R17 10K
R18 10K
R19 10K
R20 10K
R21 10K
Q1
Q2
Q3
Q4
5 ⅓'
2'
8'
1'
4'
2 ⅔'
PERC 4'
PERC 2 ⅔'
TREMOLO & CELESTE
SUSTAIN
MANUAL
PRESET
ORGAN ∨
ORGAN ∧
SOUND 1 ∨
SOUND 1 ∧
SOUND 2 ∨
SOUND 2 ∧
SOLO ∨
SOLO ∧
U/L ORGAN TYPE
HELP
DISPLAY HOLD
VARIATION
FILL IN 1
FILL IN 2
INTRO & ENDING
SYNCHRO & BREAK
START/STOP
16'
DRUMS ∨
DRUMS ∧
ACCOMP ∨
ACCOMP ∧
BASS ∨
BASS ∧
PERC 4'
PERC 2 ⅔'
1
2
3
4
R24 68
R25 68
R26 68
R27 68
R34 68
R33 68
R29 68
R28 68
R31 68
R30 68
IC3
IC2
C3 0.1
C2 0.1
A
B
C
D
E
F
1
2
3
4
5
6
7
8
9

CPSL P.C. Board

CPSL (SXPG221211A)


F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
DEMO
SW39
D39
D40
SW40
DIGITAL REVERB
CN1
CN2
D261
JP1
IC1
X1
IC3
IC4
IC5
IC2
SOUND1
SOUND2
SOLO
D270
D271
D269
D82
D83
SW81
SW82
SW83
D81
UPPER SOUND GROUP
MALLET
D254
D255
D256
D257
D258
D259
D71
D260
PIANO
E PIANO /HARPSI
GUITAR
STRINGS /VOCAL
BRASS
DIGITAL EFFECT
SW65
SW66
SW67
SW68
SW69
SW70
SW71
D65
D66
D67
D68
D69
D70
MEMORY A
SUSTAIN
SW72
SAX/ FLUTE
REED
SYNTH
MEMORY B
SW73
SW74
SW75
SW76
SW77
SW78
SPECIAL PERC
D73
D74
D75
D76
D77
D78
D72
D245
D239
D240
D241
D242
D243
D244
D224
D225
D226
D227
D228
D229
D230
D54
SW49
SW50
SW51
SW52
SW53
SW54
SW55
D49
D50
D51
D52
D53
D62
SW57
SW58
SW59
SW60
SW61
SW62
SW56
D57
D58
D59
D60
D61
D215
D209
D210
D211
D212
D213
D214
CN3
TRANSPOSE
D299
D300
DOWN
UP
SW91
SW92
D91
D92
D96
D94
D86
SW185
SW86
SLOW
FAST
TEMPO/PROGRAM
D265
D266
D267
SW45
SW46
SW47
D45
D46
D47
LOWER SOUND GROUP
BASS PEDALS
D268
SW48
D48
D246
D247
D248
D249
D250
D251
D252
D253
D32
SW25
SW26
SW27
SW28
SW29
SW30
SW31
SW32
D25
D26
D27
D28
D29
D30
D31
8 BEAT
16 BEAT
BIG BAND /SWING
JAZZ COMBO
COUNTRY /R&B
MARCH /PORKA
LATIN
COMPOSER A
D17
SW17
SW18
SW19
SW20
SW21
SW22
SW23
SW24
D18
D19
D20
D21
D22
D23
D24
D231
D232
D233
D234
D235
D236
D237
D238
ROCK DISCO
MODERN ROCK
ROCK (OTHERS)
SHOW TIME
TRAD
WALTZ
ETHNIC
COMPOSER B
D218
D219
D220
D221
D222
D208
SW11
SW12
SW13
SW14
SW15
SW8
AUTO PLAY CHORD
DYNAMIC ACCOMP
ACCOMP1
ACCOMP2
ACCOMP3
KEYBOARD PERCUSSION
D11
D12
D13
D14
D15
D8
RHYTHM GROUP
C2
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
R17
R18
R19
R20
R21
R22
R23
R24

CPSL

NOTES:

- IC'S

IC1:	M37471M2196S
IC2:	H74LS138FPTR
IC3～5:	M74LS07FP

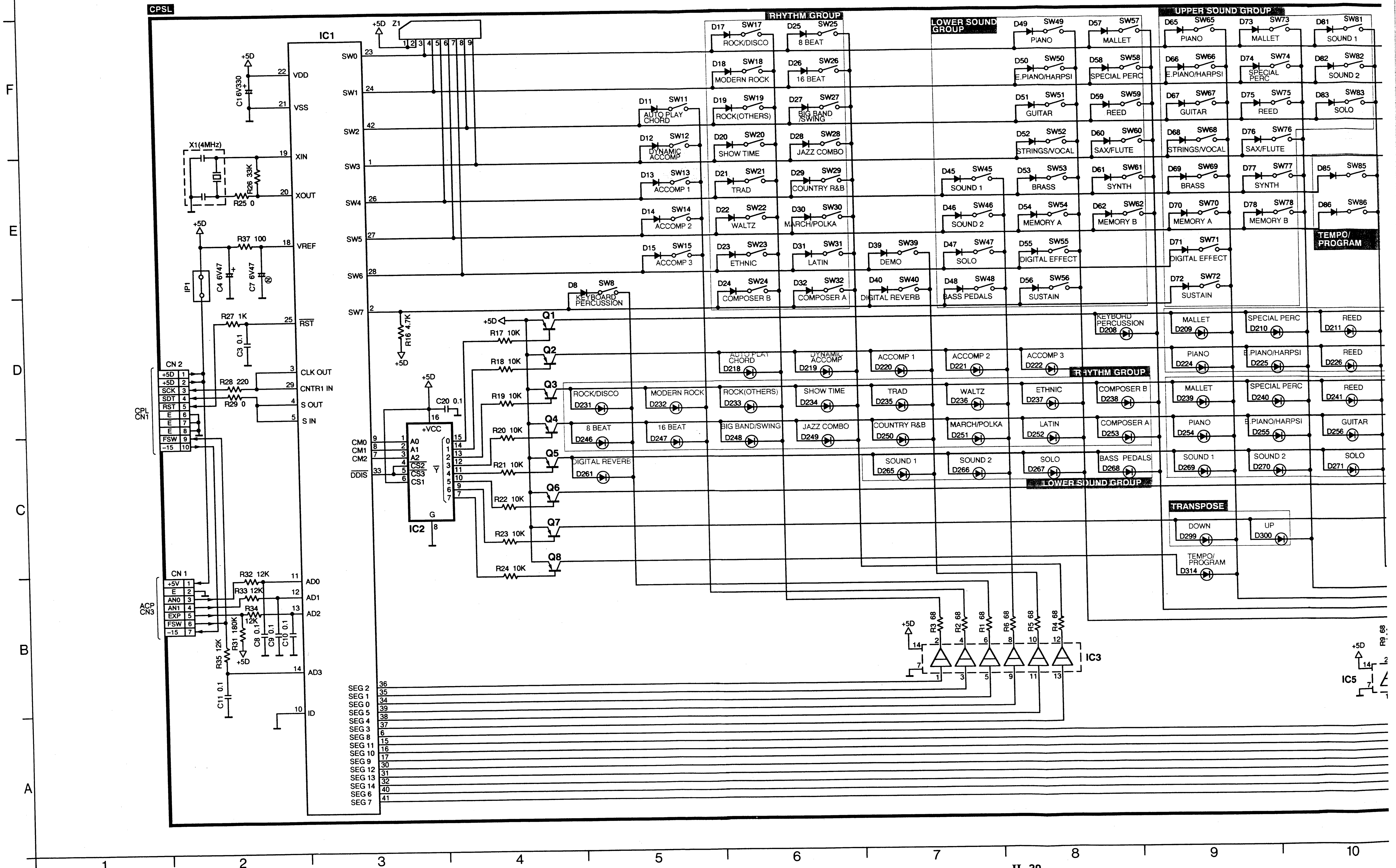
- TRANSISTORS

Q1～8:	2SA830SB

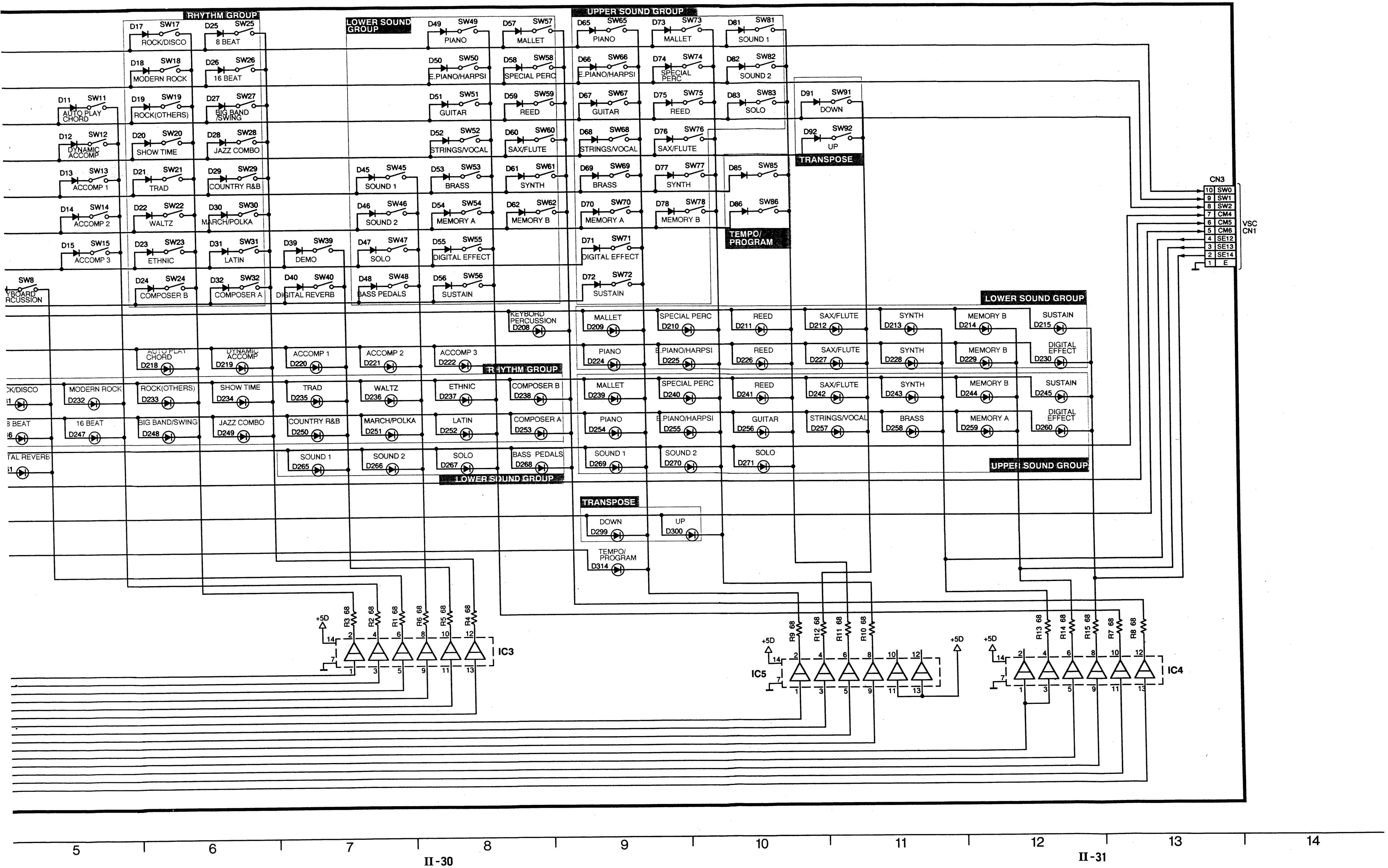
- DIODES

D8, 11～15, 17～32, 39, 40, 45～62, 65～78, 81～83, 85, 86, 91, 92:	MA165
D208～213, 215, 219, 220, 222, 224～228, 230～237, 239～243, 245～252, 254～258, 260, 261, 266～271, 299, 300:	LN282R
D214, 218, 221, 229, 238, 244, 253, 259, 314:	LN382G

CPSL P.C. Diagram

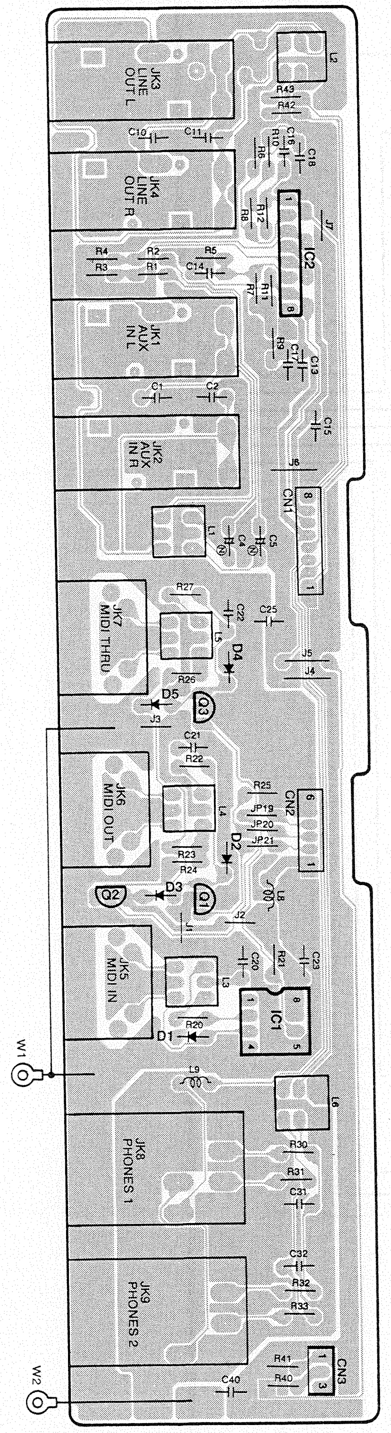


CPSL
IC1
VDD
VSS
XIN
XOUT
VREF
RST
CLK OUT
CNTR1 IN
S OUT
S IN
AD0
AD1
AD2
AD3
ID
SW0
SW1
SW2
SW3
SW4
SW5
SW6
SW7
CM0
CM1
CM2
DDIS
SEG 2
SEG 1
SEG 0
SEG 5
SEG 4
SEG 3
SEG 8
SEG 11
SEG 10
SEG 9
SEG 12
SEG 13
SEG 14
SEG 6
SEG 7
+5D
Z1
C1 6V330
X1(4MHz)
R26 33K
R25 0
R37 100
IP1
C4 6V47
C7 6V47
R27 1K
C3 0.1
CN 2
+5D
+5D
SCK
SDT
RST
E
E
E
FSW
−15
CPL CN1
R28 220
R29 0
CN 1
+5V
E
AN0
AN1
EXP
FSW
−15
ACP CN3
R32 12K
R33 12K
R34 12K
R31 180K
R35 12K
C8 0.1
C9 0.1
C10 0.1
C11 0.1
R16 4.7K
IC2
+VCC
A0
A1
A2
CS2
CS3
CS1
G
Y
C20 0.1
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
R17 10K
R18 10K
R19 10K
R20 10K
R21 10K
R22 10K
R23 10K
R24 10K
D8 SW8 KEYBOARD PERCUSSION
RHYTHM GROUP
D11 SW11 AUTO PLAY CHORD
D12 SW12 DYNAMIC ACCOMP
D13 SW13 ACCOMP 1
D14 SW14 ACCOMP 2
D15 SW15 ACCOMP 3
D17 SW17 ROCK/DISCO
D18 SW18 MODERN ROCK
D19 SW19 ROCK(OTHERS)
D20 SW20 SHOW TIME
D21 SW21 TRAD
D22 SW22 WALTZ
D23 SW23 ETHNIC
D24 SW24 COMPOSER B
D25 SW25 8 BEAT
D26 SW26 16 BEAT
D27 SW27 BIG BAND /SWING
D28 SW28 JAZZ COMBO
D29 SW29 COUNTRY R&B
D30 SW30 MARCH/POLKA
D31 SW31 LATIN
D32 SW32 COMPOSER A
D39 SW39 DEMO
D40 SW40 DIGITAL REVERB
LOWER SOUND GROUP
D45 SW45 SOUND 1
D46 SW46 SOUND 2
D47 SW47 SOLO
D48 SW48 BASS PEDALS
D49 SW49 PIANO
D50 SW50 E.PIANO/HARPSI
D51 SW51 GUITAR
D52 SW52 STRINGS/VOCAL
D53 SW53 BRASS
D54 SW54 MEMORY A
D55 SW55 DIGITAL EFFECT
D56 SW56 SUSTAIN
D57 SW57 MALLET
D58 SW58 SPECIAL PERC
D59 SW59 REED
D60 SW60 SAX/FLUTE
D61 SW61 SYNTH
D62 SW62 MEMORY B
UPPER SOUND GROUP
D65 SW65 PIANO
D66 SW66 E.PIANO/HARPSI
D67 SW67 GUITAR
D68 SW68 STRINGS/VOCAL
D69 SW69 BRASS
D70 SW70 MEMORY A
D71 SW71 DIGITAL EFFECT
D72 SW72 SUSTAIN
D73 SW73 MALLET
D74 SW74 SPECIAL PERC
D75 SW75 REED
D76 SW76 SAX/FLUTE
D77 SW77 SYNTH
D78 SW78 MEMORY B
D81 SW81 SOUND 1
D82 SW82 SOUND 2
D83 SW83 SOLO
D85 SW85
D86 SW86
TEMPO/ PROGRAM
KEYBOARD PERCUSSION D208
AUTO PLAY CHORD D218
DYNAMIC ACCOMP D219
ACCOMP 1 D220
ACCOMP 2 D221
ACCOMP 3 D222
RHYTHM GROUP
ROCK/DISCO D231
MODERN ROCK D232
ROCK(OTHERS) D233
SHOW TIME D234
TRAD D235
WALTZ D236
ETHNIC D237
COMPOSER B D238
8 BEAT D246
16 BEAT D247
BIG BAND/SWING D248
JAZZ COMBO D249
COUNTRY R&B D250
MARCH/POLKA D251
LATIN D252
COMPOSER A D253
DIGITAL REVERB D261
SOUND 1 D265
SOUND 2 D266
SOLO D267
BASS PEDALS D268
LOWER SOUND GROUP
MALLET D209
SPECIAL PERC D210
REED D211
PIANO D224
E.PIANO/HARPSI D225
REED D226
MALLET D239
SPECIAL PERC D240
REED D241
PIANO D254
E.PIANO/HARPSI D255
GUITAR D256
SOUND 1 D269
SOUND 2 D270
SOLO D271
TRANSPOSE
DOWN D299
UP D300
TEMPO/ PROGRAM D314
R3 68
R2 68
R1 68
R6 68
R5 68
R4 68
IC3
IC5
R9 68
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10


RHYTHM GROUP
D17 SW17 ROCK/DISCO
D25 SW25 8 BEAT
D18 SW18 MODERN ROCK
D26 SW26 16 BEAT
D11 SW11 AUTO PLAY CHORD
D19 SW19 ROCK(OTHERS)
D27 SW27 BIG BAND /SWING
D12 SW12 DYNAMIC ACCOMP
D20 SW20 SHOW TIME
D28 SW28 JAZZ COMBO
D13 SW13 ACCOMP 1
D21 SW21 TRAD
D29 SW29 COUNTRY R&B
D14 SW14 ACCOMP 2
D22 SW22 WALTZ
D30 SW30 MARCH/POLKA
D15 SW15 ACCOMP 3
D23 SW23 ETHNIC
D31 SW31 LATIN
D39 SW39 DEMO
SW8 YBOARD RCUSSION
D24 SW24 COMPOSER B
D32 SW32 COMPOSER A
D40 SW40 DIGITAL REVERB
LOWER SOUND GROUP
D49 SW49 PIANO
D57 SW57 MALLET
D50 SW50 E.PIANO/HARPSI
D58 SW58 SPECIAL PERC
D51 SW51 GUITAR
D59 SW59 REED
D52 SW52 STRINGS/VOCAL
D60 SW60 SAX/FLUTE
D45 SW45 SOUND 1
D53 SW53 BRASS
D61 SW61 SYNTH
D46 SW46 SOUND 2
D54 SW54 MEMORY A
D62 SW62 MEMORY B
D47 SW47 SOLO
D55 SW55 DIGITAL EFFECT
D48 SW48 BASS PEDALS
D56 SW56 SUSTAIN
UPPER SOUND GROUP
D65 SW65 PIANO
D73 SW73 MALLET
D81 SW81 SOUND 1
D66 SW66 E.PIANO/HARPSI
D74 SW74 SPECIAL PERC
D82 SW82 SOUND 2
D67 SW67 GUITAR
D75 SW75 REED
D83 SW83 SOLO
D91 SW91 DOWN
D68 SW68 STRINGS/VOCAL
D76 SW76 SAX/FLUTE
D92 SW92 UP
TRANSPOSE
D69 SW69 BRASS
D77 SW77 SYNTH
D85 SW85
D70 SW70 MEMORY A
D78 SW78 MEMORY B
D86 SW86
TEMPO/ PROGRAM
D71 SW71 DIGITAL EFFECT
D72 SW72 SUSTAIN
CN3
10 SW0
9 SW1
8 SW2
7 CM4
6 CM5
5 CM6
4 SE12
3 SE13
2 SE14
1 E
VSC CN1
LOWER SOUND GROUP
KEYBORD PERCUSSION D208
MALLET D209
SPECIAL PERC D210
REED D211
SAX/FLUTE D212
SYNTH D213
MEMORY B D214
SUSTAIN D215
AUTO PLAY CHORD D218
DYNAMIC ACCOMP D219
ACCOMP 1 D220
ACCOMP 2 D221
ACCOMP 3 D222
PIANO D224
E.PIANO/HARPSI D225
REED D226
SAX/FLUTE D227
SYNTH D228
MEMORY B D229
DIGITAL EFFECT D230
RHYTHM GROUP
CK/DISCO 31
MODERN ROCK D232
ROCK(OTHERS) D233
SHOW TIME D234
TRAD D235
WALTZ D236
ETHNIC D237
COMPOSER B D238
MALLET D239
SPECIAL PERC D240
REED D241
SAX/FLUTE D242
SYNTH D243
MEMORY B D244
SUSTAIN D245
8 BEAT 46
16 BEAT D247
BIG BAND/SWING D248
JAZZ COMBO D249
COUNTRY R&B D250
MARCH/POLKA D251
LATIN D252
COMPOSER A D253
PIANO D254
E.PIANO/HARPSI D255
GUITAR D256
STRINGS/VOCAL D257
BRASS D258
MEMORY A D259
DIGITAL EFFECT D260
TAL REVERB 61
SOUND 1 D265
SOUND 2 D266
SOLO D267
BASS PEDALS D268
SOUND 1 D269
SOUND 2 D270
SOLO D271
LOWER SOUND GROUP
UPPER SOUND GROUP
TRANSPOSE
DOWN D299
UP D300
TEMPO/ PROGRAM D314
+5D
R3 68
R2 68
R1 68
R6 68
R5 68
R4 68
14 2 4 6 8 10 12
7 1 3 5 9 11 13
IC3
+5D
R9 68
R12 68
R11 68
R10 68
14 2 4 6 8 10 12
7 1 3 5 9 11 13
IC5
+5D
+5D
R13 68
R14 68
R15 68
R7 68
R8 68
14 2 4 6 8 10 12
7 1 3 5 9 11 13
IC4
5
6
7
8
9
10
11
12
13
14

JACK/INV

JACK (SXPG221411A)



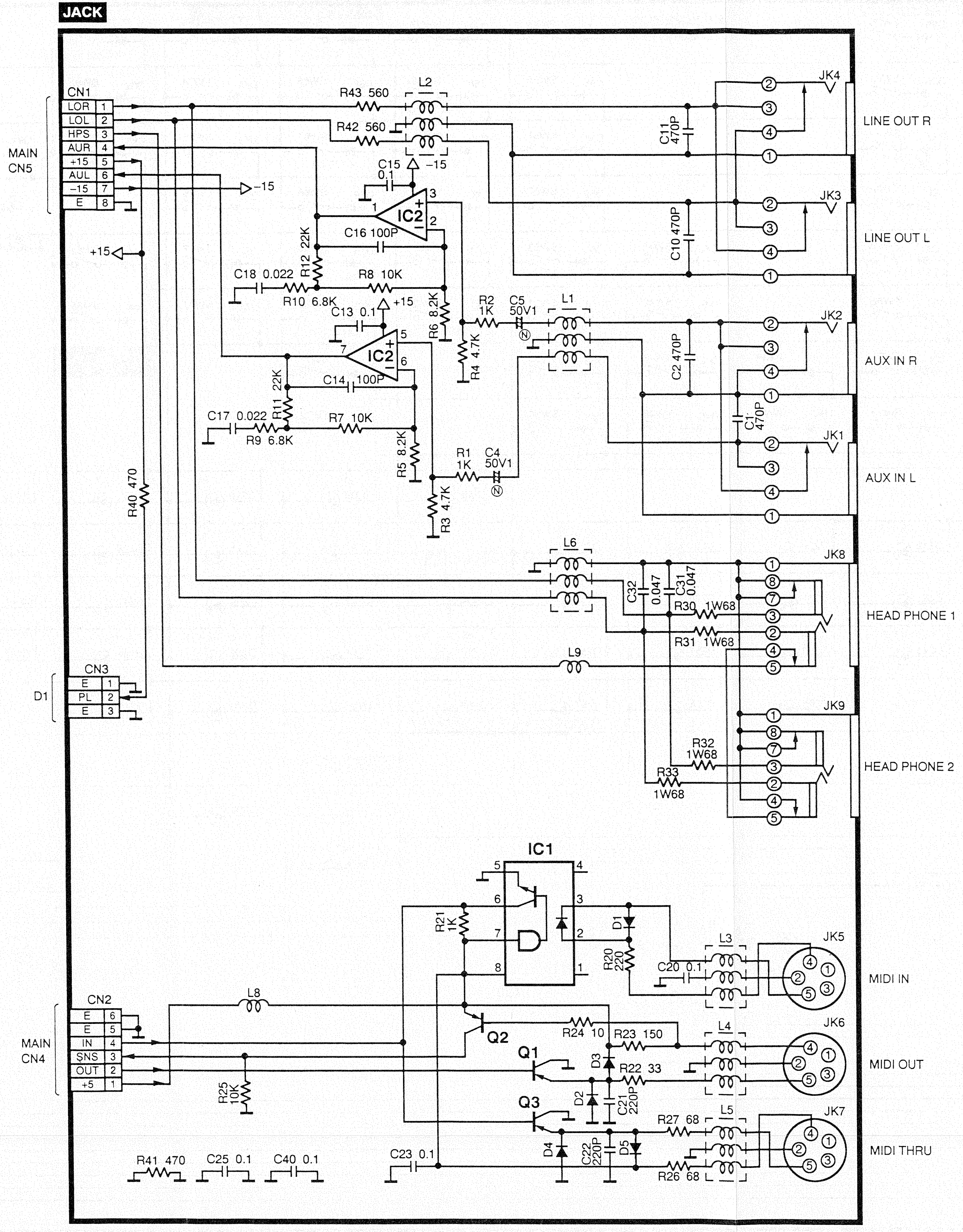
JK3 LINE OUT L
JK4 LINE OUT R
JK1 AUX IN L
JK2 AUX IN R
JK7 MIDI THRU
JK6 MIDI OUT
JK5 MIDI IN
JK8 PHONES 1
JK9 PHONES 2
IC1
IC2
CN1
CN2
CN3
W1
W2

JACK

NOTES:

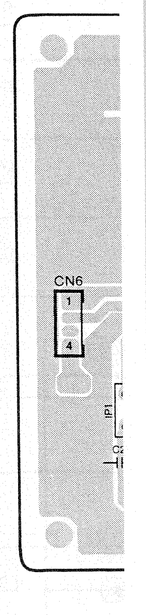
- IC'S
  - IC1: QCPL-260L
  - IC2: M5218AL
- TRANSISTORS
  - Q1~3: 2SA1015-GR
- DIODES
  - D1~5: MA165

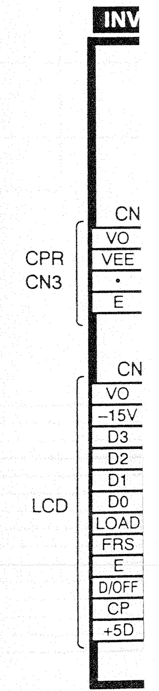
JACK



MAIN CN5
CN1
LOR 1
LOL 2
HPS 3
AUR 4
+15 5
AUL 6
−15 7
E 8
R43 560
R42 560
L2
C15 0.1
−15
IC2
C16 100P
R12 22K
C18 0.022
R10 6.8K
R8 10K
C13 0.1
+15
R6 8.2K
R2 1K
C5 50V1
L1
R4 4.7K
C14 100P
R11 22K
C17 0.022
R9 6.8K
R7 10K
R5 8.2K
R1 1K
C4 50V1
R3 4.7K
R40 470
+15
C11 470P
C10 470P
C2 470P
C1 470P
JK4
LINE OUT R
JK3
LINE OUT L
JK2
AUX IN R
JK1
AUX IN L
L6
C32 0.047
C31 0.047
R30 1W68
R31 1W68
L9
JK8
HEAD PHONE 1
JK9
R32 1W68
R33 1W68
HEAD PHONE 2
CN3
D1
E 1
PL 2
E 3
IC1
R21 1K
D1
R20 220
C20 0.1
L3
JK5
MIDI IN
MAIN CN4
CN2
E 6
E 5
IN 4
SNS 3
OUT 2
+5 1
L8
Q2
R24 10
R23 150
L4
Q1
D3
R22 33
JK6
MIDI OUT
R25 10K
Q3
D2
C21 220P
R27 68
L5
JK7
MIDI THRU
D4
C22 220P
D5
R26 68
C23 0.1
R41 470
C25 0.1
C40 0.1

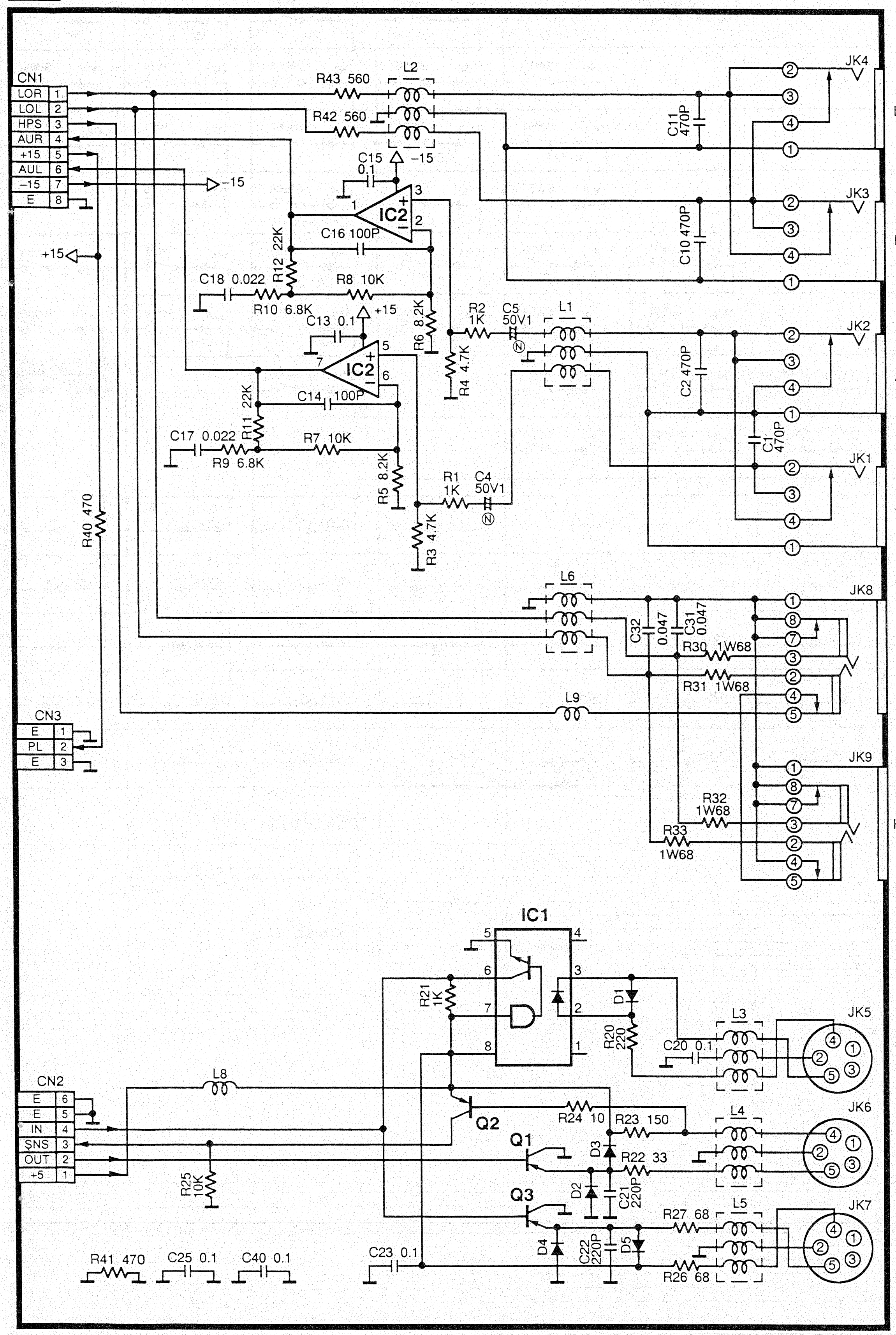
INV (SX



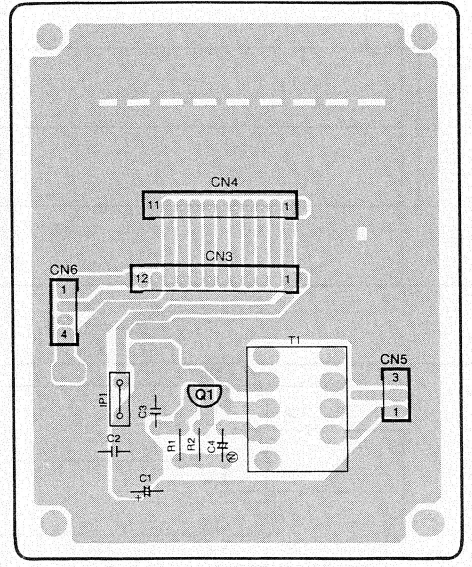


INV
CPR CN3
VO
VEE
E
LCD
CN
VO
−15V
D3
D2
D1
D0
LOAD
FRS
E
D/OFF
CP
+5D

JACK


CN1
LOR 1
LOL 2
HPS 3
AUR 4
+15 5
AUL 6
−15 7
E 8
R43 560
R42 560
L2
C15 0.1
−15
IC2
C16 100P
R12 22K
C18 0.022
R10 6.8K
R8 10K
C13 0.1
+15
R6 8.2K
R2 1K
C5 50V1
L1
R4 4.7K
C14 100P
R11 22K
C17 0.022
R9 6.8K
R7 10K
R5 8.2K
R1 1K
C4 50V1
R3 4.7K
R40 470
C11 470P
C10 470P
C2 470P
C1 470P
JK4
LINE OUT R
JK3
LINE OUT L
JK2
AUX IN R
JK1
AUX IN L
L6
C32 0.047
C31 0.047
R30 1W68
R31 1W68
JK8
HEAD PHONE 1
L9
CN3
E 1
PL 2
E 3
JK9
R32 1W68
R33 1W68
HEAD PHONE 2
IC1
R21 1K
D1
R20 220
C20 0.1
L3
JK5
MIDI IN
CN2
E 6
E 5
IN 4
SNS 3
OUT 2
+5 1
L8
Q2
R24 10
R23 150
L4
JK6
MIDI OUT
Q1
D3
R22 33
R25 10K
D2
C21 220P
Q3
R27 68
L5
JK7
MIDI THRU
D4
C22 220P
D5
R26 68
R41 470
C25 0.1
C40 0.1
C23 0.1

INV (SXPG221311D)

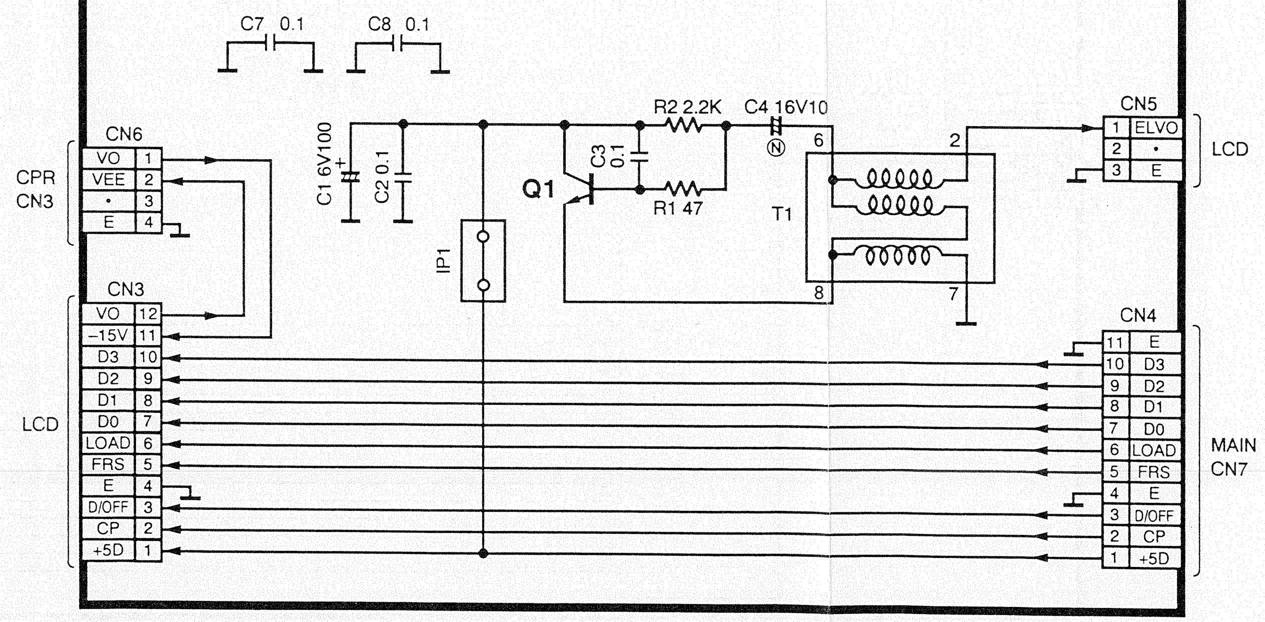

CN4
CN3
CN6
T1
CN5
Q1

INV

NOTE:

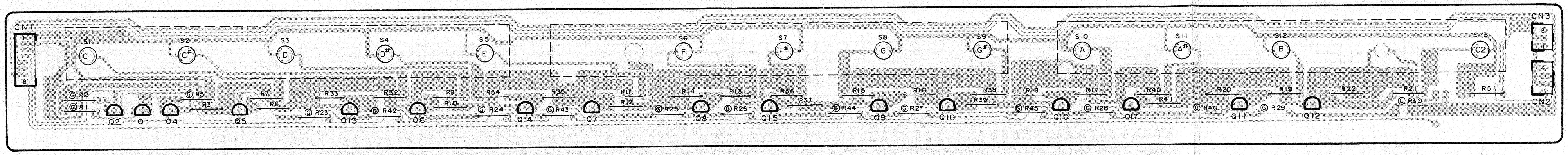
- TRANSISTOR
  Q1:　2SC3940ARS

INV


C7 0.1
C8 0.1
CPR CN3
CN6
VO 1
VEE 2
• 3
E 4
C1 6V100
C2 0.1
IP1
Q1
C3 0.1
R2 2.2K
C4 16V10
R1 47
T1
CN5
1 ELVO
2 •
3 E
LCD
CN3
VO 12
−15V 11
D3 10
D2 9
D1 8
D0 7
LOAD 6
FRS 5
E 4
D/OFF 3
CP 2
+5D 1
LCD
CN4
11 E
10 D3
9 D2
8 D1
7 D0
6 LOAD
5 FRS
4 E
3 D/OFF
2 CP
1 +5D
MAIN CN7

PKB/EXP

PKB (SXPG14511)



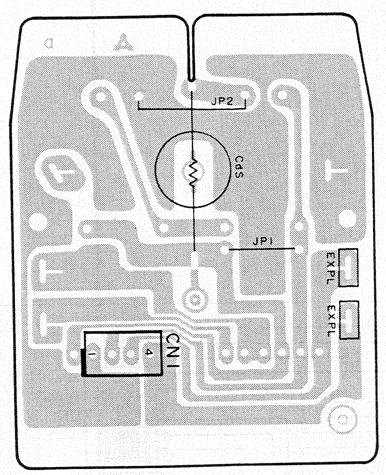
CN1
S1 C1
S2 C#
S3 D
S4 D#
S5 E
S6 F
S7 F#
S8 G
S9 G#
S10 A
S11 A#
S12 B
S13 C2
CN3
CN2
Q2 Q1 Q4 Q5 Q13 Q6 Q14 Q7 Q8 Q15 Q9 Q16 Q10 Q17 Q11 Q12
R1 R2 R5 R3 R7 R8 R33 R23 R32 R42 R9 R10 R34 R24 R35 R43 R11 R12 R14 R25 R13 R26 R36 R37 R15 R44 R16 R27 R38 R39 R18 R45 R17 R28 R40 R41 R20 R46 R19 R29 R22 R21 R30 R51

PKB

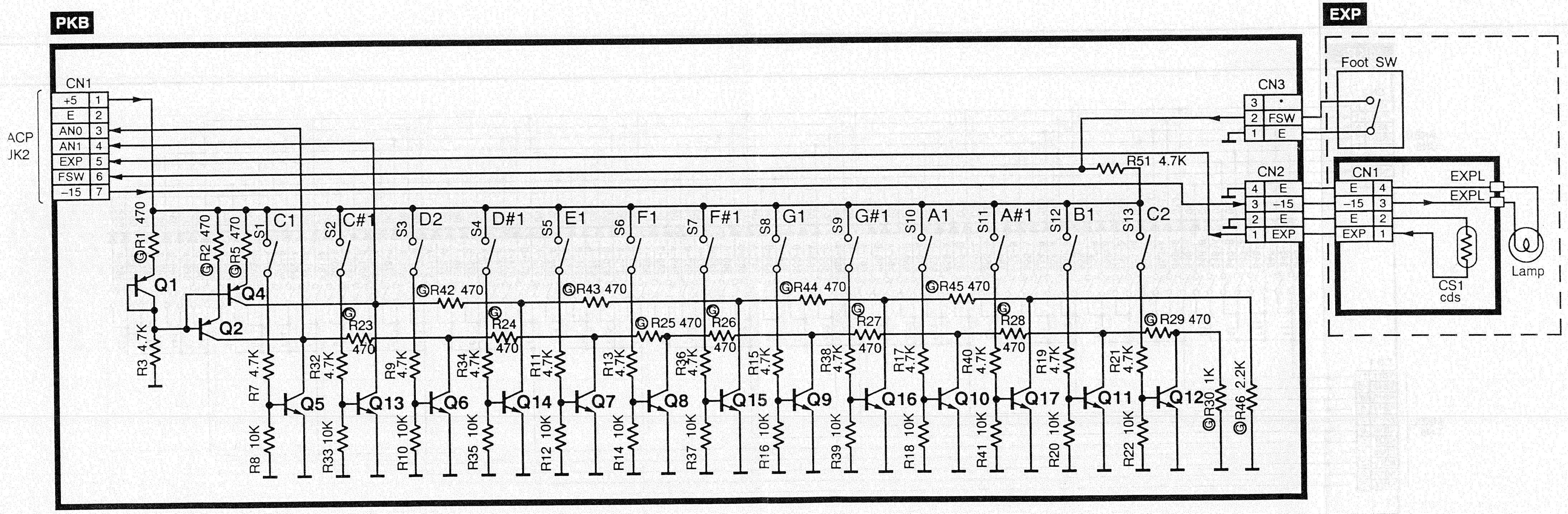
NOTE:

- TRANSISTORS
  Q1, 2, 4: 2SA1015-GR
  Q5~17: 2SC2320LFG

EXP (SXPG103211D)



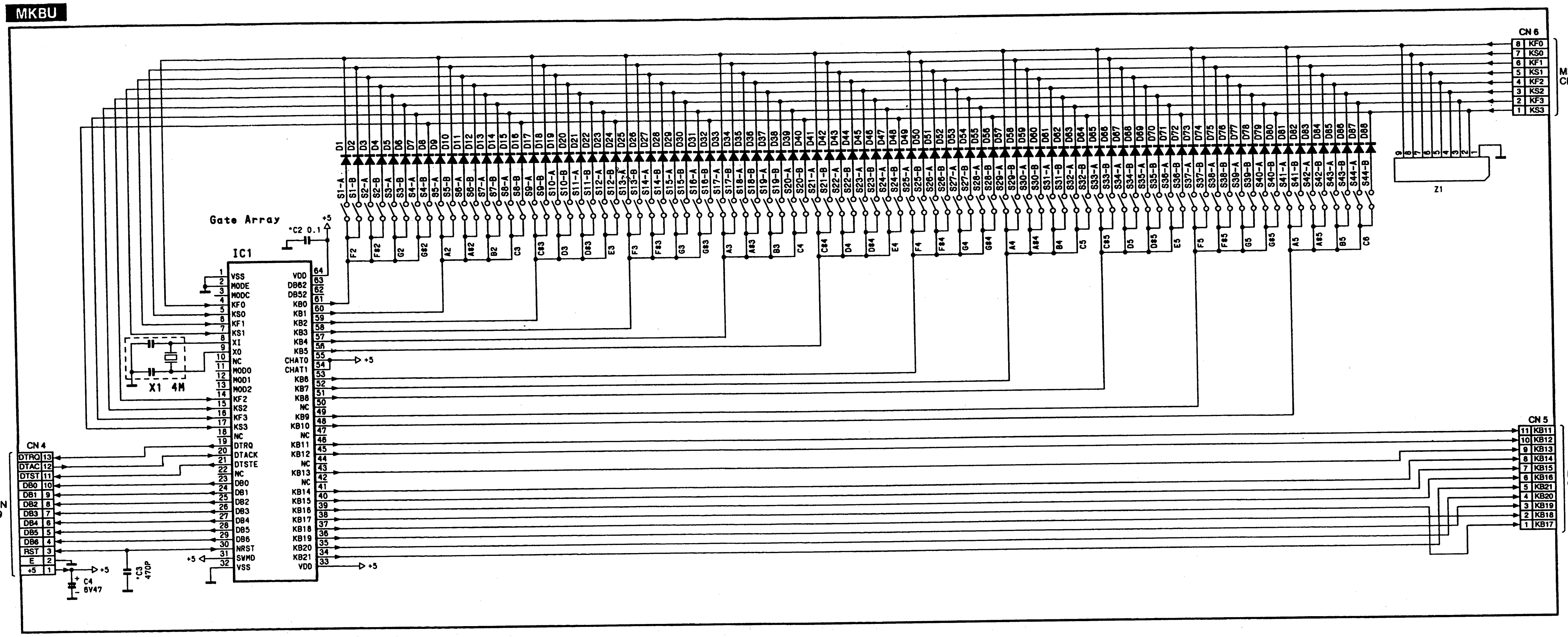
JP2
CdS
JP1
EXPL
EXPL
CN1



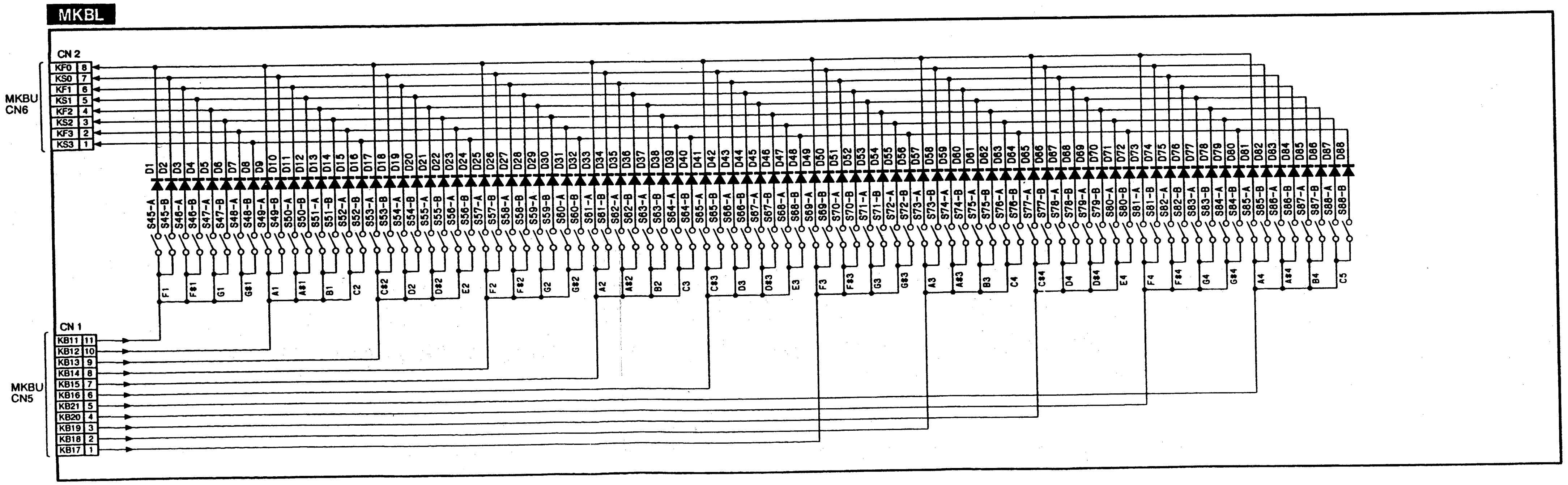
PKB
EXP
ACP JK2
CN1
+5 1
E 2
AN0 3
AN1 4
EXP 5
FSW 6
−15 7
CN3
3 •
2 FSW
1 E
CN2
4 E
3 −15
2 E
1 EXP
R51 4.7K
Foot SW
CN1
E 4
−15 3
E 2
EXP 1
EXPL
EXPL
CS1 cds
Lamp
R1 470
R2 470
R5 470
R3 4.7K
Q1 Q2 Q4
S1 C1
S2 C#1
S3 D2
S4 D#1
S5 E1
S6 F1
S7 F#1
S8 G1
S9 G#1
S10 A1
S11 A#1
S12 B1
S13 C2
R42 470
R43 470
R44 470
R45 470
R23 470
R24 470
R25 470
R26 470
R27 470
R28 470
R29 470
R7 4.7K
R32 4.7K
R9 4.7K
R34 4.7K
R11 4.7K
R13 4.7K
R36 4.7K
R15 4.7K
R38 4.7K
R17 4.7K
R40 4.7K
R19 4.7K
R21 4.7K
Q5 Q13 Q6 Q14 Q7 Q8 Q15 Q9 Q16 Q10 Q17 Q11 Q12
R8 10K
R33 10K
R10 10K
R35 10K
R12 10K
R14 10K
R37 10K
R16 10K
R39 10K
R18 10K
R41 10K
R20 10K
R22 10K
R30 1K
R46 2.2K

MKB P.C. Diagram

MKBU

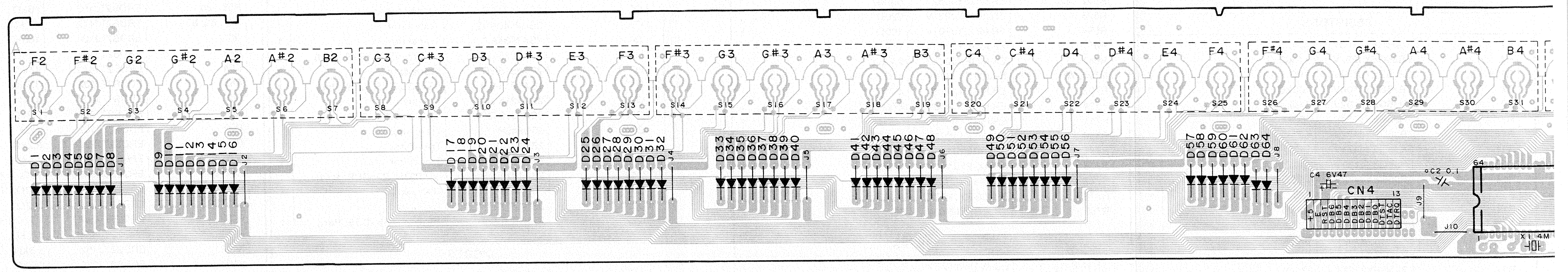

Gate Array
IC1
*C2 0.1
+5
VSS
MODE
MODC
KF0
KS0
KF1
KS1
XI
XO
NC
MOD0
MOD1
MOD2
KF2
KS2
KF3
KS3
DTRQ
DTACK
DTSTE
DB0
DB1
DB2
DB3
DB4
DB5
DB6
NRST
SWMD
VDD
DB62
DB52
KB0
KB1
KB2
KB3
KB4
KB5
CHAT0
CHAT1
KB6
KB7
KB8
KB9
KB10
KB11
KB12
KB13
KB14
KB15
KB16
KB17
KB18
KB19
KB20
KB21
X1 4M
CN 4
DTRQ 13
DTAC 12
DTST 11
DB0 10
DB1 9
DB2 8
DB3 7
DB4 6
DB5 5
DB6 4
RST 3
E 2
+5 1
MAIN CN9
C4 6V47
*C3 470P
CN 6
8 KF0
7 KS0
6 KF1
5 KS1
4 KF2
3 KS2
2 KF3
1 KS3
MKBL CN2
Z1
CN 5
11 KB11
10 KB12
9 KB13
8 KB14
7 KB15
6 KB16
5 KB21
4 KB20
3 KB19
2 KB18
1 KB17
MKBL CN1
D1
D88
S1-A
S1-B
S44-A
S44-B
F2
F#2
G2
G#2
A2
A#2
B2
C3
C#3
D3
D#3
E3
F3
F#3
G3
G#3
A3
A#3
B3
C4
C#4
D4
D#4
E4
F4
F#4
G4
G#4
A4
A#4
B4
C5
C#5
D5
D#5
E5
F5
F#5
G5
G#5
A5
A#5
B5
C6
F
E
D
C

MKBL

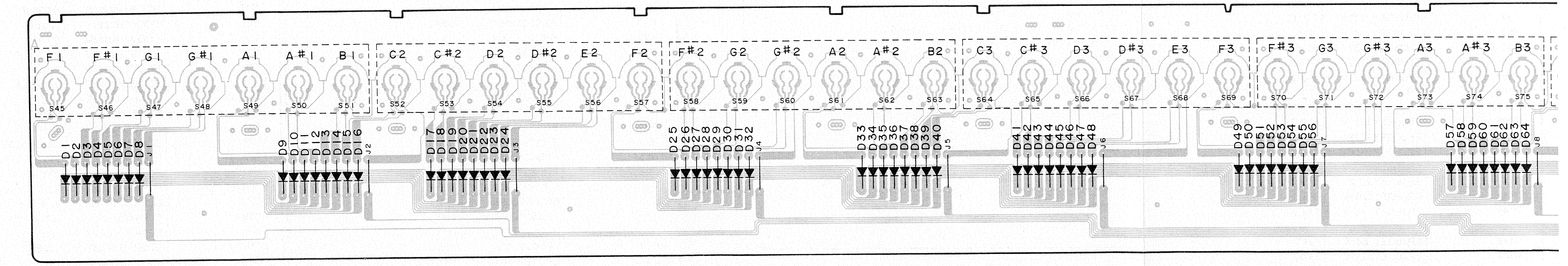

CN 2
KF0 8
KS0 7
KF1 6
KS1 5
KF2 4
KS2 3
KF3 2
KS3 1
MKBU CN6
CN 1
KB11 11
KB12 10
KB13 9
KB14 8
KB15 7
KB16 6
KB21 5
KB20 4
KB19 3
KB18 2
KB17 1
MKBU CN5
D1
D88
S45-A
S45-B
S88-A
S88-B
F1
F#1
G1
G#1
A1
A#1
B1
C2
C#2
D2
D#2
E2
F2
F#2
G2
G#2
A2
A#2
B2
C3
C#3
D3
D#3
E3
F3
F#3
G3
G#3
A3
A#3
B3
C4
C#4
D4
D#4
E4
F4
F#4
G4
G#4
A4
A#4
B4
C5
B
A
1
2
3
4
5
6
7
8
9

MKB P.C. Board

MKBU (SXPG207611A)

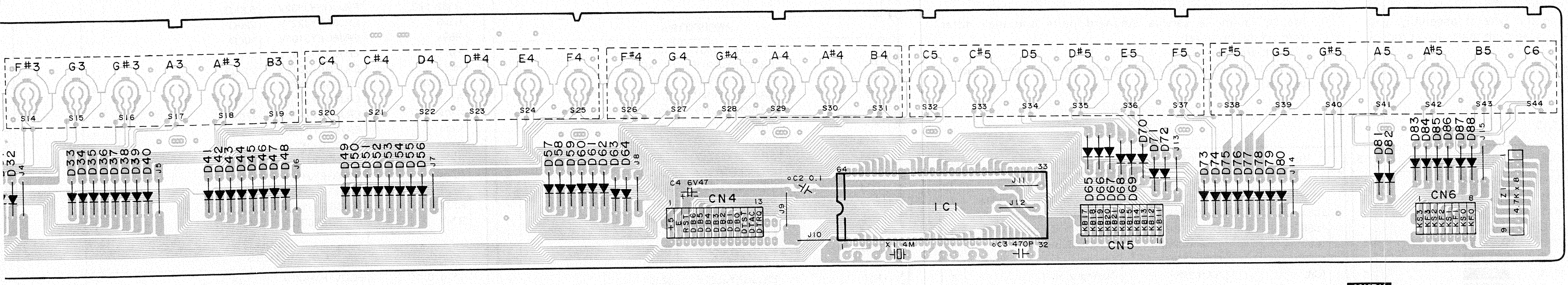

F2
F#2
G2
G#2
A2
A#2
B2
C3
C#3
D3
D#3
E3
F3
F#3
G3
G#3
A3
A#3
B3
C4
C#4
D4
D#4
E4
F4
F#4
G4
G#4
A4
A#4
B4
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
S15
S16
S17
S18
S19
S20
S21
S22
S23
S24
S25
S26
S27
S28
S29
S30
S31
D1 D2 D3 D4 D5 D6 D7 D8
J1
D9 D10 D11 D12 D13 D14 D15 D16
J2
D17 D18 D19 D20 D21 D22 D23 D24
J3
D25 D26 D27 D28 D29 D30 D31 D32
J4
D33 D34 D35 D36 D37 D38 D39 D40
J5
D41 D42 D43 D44 D45 D46 D47 D48
J6
D49 D50 D51 D52 D53 D54 D55 D56
J7
D57 D58 D59 D60 D61 D62 D63 D64
J8
C4 6V47
CN4
1
13
+5
E
RST
DB6
DB5
DB4
DB3
DB2
DB1
DB0
DTST
DTAC
DTRQ
J9
C2 0.1
J10
64
1
X1 4M

MKBL (SXPG207611B)


F1
F#1
G1
G#1
A1
A#1
B1
C2
C#2
D2
D#2
E2
F2
F#2
G2
G#2
A2
A#2
B2
C3
C#3
D3
D#3
E3
F3
F#3
G3
G#3
A3
A#3
B3
S45
S46
S47
S48
S49
S50
S51
S52
S53
S54
S55
S56
S57
S58
S59
S60
S61
S62
S63
S64
S65
S66
S67
S68
S69
S70
S71
S72
S73
S74
S75
D1 D2 D3 D4 D5 D6 D7 D8
J1
D9 D10 D11 D12 D13 D14 D15 D16
J2
D17 D18 D19 D20 D21 D22 D23 D24
J3
D25 D26 D27 D28 D29 D30 D31 D32
J4
D33 D34 D35 D36 D37 D38 D39 D40
J5
D41 D42 D43 D44 D45 D46 D47 D48
J6
D49 D50 D51 D52 D53 D54 D55 D56
J7
D57 D58 D59 D60 D61 D62 D63 D64
J8

F
E
D
C
B
A

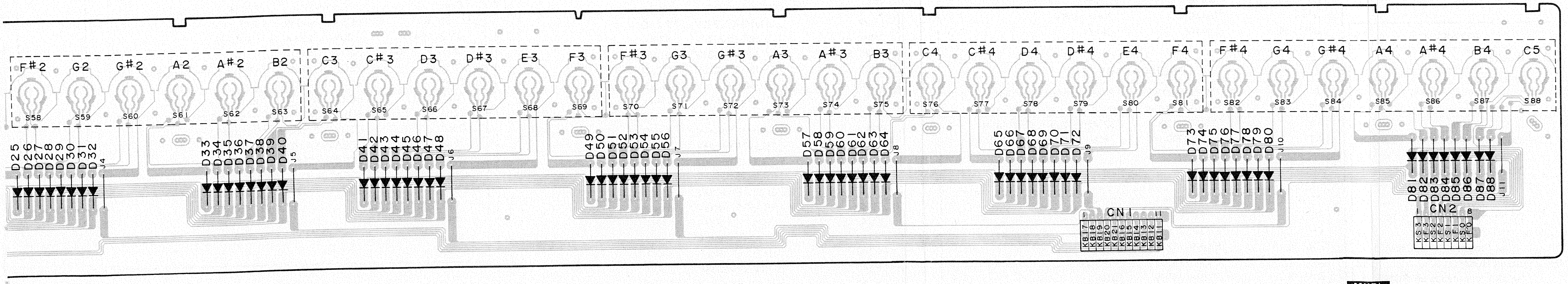
1 2 3 4 5 6 7 8 9 10


F#3
G3
G#3
A3
A#3
B3
C4
C#4
D4
D#4
E4
F4
F#4
G4
G#4
A4
A#4
B4
C5
C#5
D5
D#5
E5
F5
F#5
G5
G#5
A5
A#5
B5
C6
S14
S15
S16
S17
S18
S19
S20
S21
S22
S23
S24
S25
S26
S27
S28
S29
S30
S31
S32
S33
S34
S35
S36
S37
S38
S39
S40
S41
S42
S43
S44
C4 6V47
C2 0.1
CN4
IC1
J10
J11
J12
X1 4M
C3 470P
CN5
CN6
47K×8

MKBU

NOTES:

- IC
  IC1: MN50020PGV
- DIODES
  D1～88: MA162A


F#2
G2
G#2
A2
A#2
B2
C3
C#3
D3
D#3
E3
F3
F#3
G3
G#3
A3
A#3
B3
C4
C#4
D4
D#4
E4
F4
F#4
G4
G#4
A4
A#4
B4
C5
S58
S59
S60
S61
S62
S63
S64
S65
S66
S67
S68
S69
S70
S71
S72
S73
S74
S75
S76
S77
S78
S79
S80
S81
S82
S83
S84
S85
S86
S87
S88
CN1
CN2

MKBL

NOTE:

- DIODES
  D89～176: MA162A

REPLACEMENT PARTS LIST……P.C.B. and Wiring Parts

Notes:

1. The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retension period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention.
   After the end of this period, the assembly will no longer be available.
2. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "S" mark is service standard parts and may differ from production parts.
4. ○ mark are new parts.
5. For part No. with area mark, check the area when placing an order.

■ PRINTED CIRCUIT BOARD

	RTL	Area	Part No.	Description	P/S
○	RTL		SXPG221111	MAIN	1
○	RTL	Others	SXPG2170101	AS	1
○	RTL	M MC XM	SXPG2170111	AS	1
○	RTL	Others	SXPG221411B	ACP	1
○	RTL	M MC XM	SXPG221421B	ACP	1
○	RTL	X XD XT XS	SXPG221431B	ACP	1
○	RTL	XR	SXPG221451B	ACP	1
○	RTL	XL	SXPG221441B	ACP	1
○	RTL		SXPG221211A	CPSL	1
○	RTL		SXPG221311A	CPR	1
○	RTL	Others	SXPG221311B	CPL	1
○	RTL	M MC XM	SXPG221321B	CPL	1
○	RTL		SXPG221311C	VSC	1
○	RTL		SXPG221211B	CPSQ	1
○	RTL		SXPG221311D	INV	1
○	RTL		SXPG221411A	JACK	1
○	RTL		SXPG221411C	NW	1
	RTL		SXPG207611A	MKBU	1
	RTL		SXPG207611B	MKBL	1
	RTL		SXPG145111	PKB	1
	RTL		SXPG103211	EXP	1
			EDMMPJ2B6W	LCD	1

MAIN MAIN CIRCUIT

	Ref. No.	Part No.	Description	P/S
		INTEGRATED CIRCUITS		
	IC1	D70236AGD10	Gate Array	1
	IC2	D65046GD188	Gate Array	1
	IC3, 4	TC25540AF006	Tone Generator LSI	2
	IC5	SED1330FBA	LCD Controller	1
	IC6	HM65256BLF10	256K bit Pseudo Static RAM	1
	IC7	D72068GF-3B9	Floppy Disk Controller	1
	IC9	D6383GF-3B9	Digital Signal Processor	1
○	IC13	M511664-80JS	1M bit D-RAM	1
	IC14	D74HC244GS	3 State Buffers	1
○	IC15	QSIGCEA5AX	4M bit Programmed EP ROM	1
S	IC15-1	⌈ HN27C4096G10	[Blank ROM]	-13
○	IC16	QSIGAEA5BX	1M bit Programmed EP ROM	1
S	IC16-1	⌈ HN27C1024HG	[Blank ROM]	-14
○	IC17	QSIGCEA5CX	4M bit Programmed EP ROM	1
S	IC17-1	⌈ HN27C4096G10	[Blank ROM]	-15
○	IC18	QSIGH3C08E64	8M bit Wave ROM	1
	IC20	M5M44170AJ8S	4M bit Dinamic RAM	1
	IC22	M5256BFP85LL	256K bit STATIC RAM	1
○	IC23	QSIGH3C16DD7	16M bit Wave ROM	1
○	IC24	QSIGH3C16DD8	16M bit Wave ROM	1
	IC26	QSIGT3C16021	16M bit Wave ROM	1
	IC40	PCM69AU	D-A Converter	1
	IC48	D74HC74GS	D-type Flip flpos	1
	IC49	D74HC393GS	DUAL 4 bit Binary Counter	1
	IC54	M5218AFP	Operational Amplifier	1
	IC59	D74HC08GS	QUAD 2 input AND GATE	1
	IC60	D74HC32GS	QUAD 2 input OR GATE	1
	IC62	D74HC04GS	6 Inveter	1
	IC82	BA10393F	Comparator	1
	IC91	M5218AFP	Operational Amplifier	1
		TRANSISTORS		
	Q1	2SB709AR	Transistor	1
	Q2	2SD601AQ	Transistor	1
S	Q4	2SC1815GR	Transistor	1
	Q5	2SB946P	Transistor	1
S	Q6	2SC1815GR	Transistor	1
S	Q8	2SC1815GR	Transistor	1
	Q33	2SD601AQ	Transistor	1
		DIODES		
	D1	MA165	Diode	1
	D6	MA2062LF	Zener, 6.2V	1
	D7	SVDGERC9102	Diode	1
	D8	MA1030	Zener, 3.0V	1
	D9	MA165	Diode	1
	D10	MA4051	Zener, 5.1V	1
	D11～13	MA165	Diode	3
	D14	MA4056	Zener, 5.6V	1
	D15～19	MA165	Diode	5
		OSCILLATORS		
○	X1	QSXG1A2000A	20MHz Quartz Oscillator	1
	X2	QSXG1I4915A	49MHz, Quartz Oscillator	1
	X3	QSXG1I3200A	32MHz, Quartz Oscillator	1
	X4	EF0EC8004A5	8MHz, Ceramic Oscillator	1
		COMPONENT COMBINATIONS		
	Z1～4, 8, 9	EXBS8V000V	0Ω×4	6
○	Z6, 7	EXBV8V000V	0Ω×4	2
○	Z10, 11	EXBV8V000V	0Ω×4	2
	Z15, 16	EXBS8V471J	470Ω×4	2
	Z17	EXBV8V472J	4.7kΩ×4	1
○	Z18, 19	EXBV8V000V	0Ω×4	2
	Z20	EXBV8V472J	4.7kΩ×4	1
	Z21, 22	EXBS8V102J	1kΩ×4	2
	Z24	EXBV8V472J	4.7kΩ×4	1
	Z25, 27	EXBS8V470J	47Ω×4	2
○	Z50, 51	EXBV8V000V	100Ω×4	2
	Z61	EXBV8V471J	470Ω×4	1
○	Z70, 71	EXBV8V000V	1kΩ×4	2

	Ref. No.	Part No.	Description	P/S
		COIL		
	L1	SLCG3A121T	Coil	1
		RESISTORS		
	R1	ERJ6GEYJ103V	10kΩ	1
	R4	ERJ6GEYJ222V	2.2kΩ	1
	R5, 6	ERJ6GEYJ102V	1kΩ	2
	R7	ERJ6GEYJ104V	100kΩ	1
	R8	ERJ6GEYJ102V	1kΩ	1
	R9	ERJ6GEYJ154V	150kΩ	1
	R10	ERJ6GEYJ472V	4.7kΩ	1
	R11	ERJ6GEYJ471V	470Ω	1
	R12, 13	ERJ6GEYJ101V	100Ω	2
	R14	ERJ6GEYJ472V	4.7kΩ	1
	R15	ERJ6GEYJ222V	2.2kΩ	1
	R16	ERJ6GEYJ472V	4.7kΩ	1
	R17	ERJ6GEYJ221V	220Ω	1
	R18	ERJ6GEYJ101V	100Ω	1
	R19	ERJ6GEYJ472V	4.7kΩ	1
	R20	ERJ6GEYJ221V	220Ω	1
	R25	ERJ6GEYJ101V	100Ω	1
	R26	ERJ6GEYJ103V	10kΩ	1
	R27	ERJ6GEYJ472V	4.7kΩ	1
	R28, 29	ERJ6GEYJ103V	10kΩ	2
	R31	ERJ6GEYJ472V	4.7kΩ	1
	R33	ERJ6GEYJ103V	10kΩ	1
	R34	ERJ6GEYJ103V	10kΩ	1
	R35～37	ERJ6GEYJ471V	470Ω	3
	R38	ERJ6GEYJ102V	1kΩ	1
	R39	ERJ6GEYJ154V	150kΩ	1
	R45	ERJ6GEYJ473V	47kΩ	1
	R46	ERJ6GEYJ221V	220Ω	1
	R47	ERJ6GEYJ470V	47Ω	1
	R48～50, 52, 53	ERJ6GEYJ472V	4.7kΩ	5
	R54	ERJ6GEYJ221V	220Ω	1
	R55	ERJ6GEY0R00V	0Ω	1
	R56	ERJ6GEYJ333V	33kΩ	1
	R58	ERJ6GEY0R00V	0Ω	1
	R60	ERJ6GEYJ102V	1kΩ	1
	R85, 87, 88	ERJ6GEY0R00V	0Ω	3
	R90, 91	ERJ6GEYJ470V	47Ω	2
	R92	ERJ6GEYJ222V	2.2kΩ	1
	R93, 94	ERJ6GEYJ470V	47Ω	2
	R95, 96	ERJ6GEYJ331V	330Ω	2
	R99	ERJ6GEYJ222V	2.2kΩ	1
	R101	ERJ6GEYJ221V	220Ω	1
	R102	ERJ6GEYJ471V	470Ω	1
	R104	ERJ6GEYJ222V	2.2kΩ	1
	R105	ERJ6GEYJ682V	6.8kΩ	1
	R111	ERJ6GEYJ103V	10kΩ	1
	R112	ERJ6GEY0R00V	0Ω	1
	R140	ERJ6GEYJ102V	1kΩ	1
	R142, 144	ERJ6GEYJ822V	8.2kΩ	2
	R145	ERJ6GEYJ683V	68kΩ	1
	R146	ERJ6GEYJ333V	33kΩ	1
	R147	ERJ6GEYJ273V	27kΩ	1
	R148	ERJ6GEYJ683V	68kΩ	1
	R149	ERJ6GEYJ333V	33kΩ	1
	R150	ERJ6GEYJ273V	27kΩ	1
	R153, 154	ERJ6GEYJ683V	68kΩ	2
	R155, 156	ERJ6GEYJ222V	2.2kΩ	2
	R220, 221	ERJ6GEYJ102V	1kΩ	2
	R222	ERJ6GEYJ101V	100Ω	1
	R223	ERJ6GEYJ683V	68kΩ	1
	R224	ERJ6GEYJ471V	470Ω	1
	R321	ERJ6GEYJ102V	1kΩ	1
	R322	ERJ6GEYJ471V	470Ω	1
	R323	ERJ6GEYJ102V	1kΩ	1
	R325	ERJ6GEY0R00V	0Ω	1
	R562, 563	ERJ6GEYJ682V	6.8kΩ	2
	R593	ERJ6GEYJ221V	220Ω	1
	R594	ERJ6GEYJ101V	100Ω	1
	R651	ERJ6GEYJ103V	10kΩ	1
	R667	ERJ6GEYJ222V	2.2kΩ	1
	R700, 701	ERJ6GEYJ470V	47Ω	2
	R702	ERJ6GEYJ472V	4.7kΩ	1
	R704	ERJ6GEYJ470V	47Ω	1
	R711	ERJ6GEY0R00V	0Ω	1
	R750, 751	ERJ6GEYJ222V	2.2kΩ	2
	R771	ERJ6GEYJ102V	1kΩ	1
	R776	ERJ6GEYJ101V	100Ω	1
	R777	ERJ6GEY0R00V	0Ω	1
	R778	ERJ6GEYJ103V	10kΩ	1
	R785	ERJ6GEY0R00V	0Ω	1
		CAPACITORS		
	C5, 6, 8, 12	ECUV1H104ZFX	0.1μF	4
	C13	ECQV1H224JM	0.22μF	1
	C14, 19～25	ECUV1H104ZFX	0.1μF	8
	C26	ECUV1H101JG	100pF	1
	C27, 28	ECUV1H104ZFX	0.1μF	2
	C30	ECUV1H101JG	100pF	1
	C31, 32	ECUV1H104ZFX	0.1μF	2
	C33	ECUV1H101JG	100pF	1
	C42	ECUV1H104ZFX	0.1μF	1
	C43	ECUV1H101JG	100pF	1
	C44, 45, 51, 63, 84～87	ECUV1H104ZFX	0.1μF	8
	C48	ECUV1H060DCN	6pF	1
	C113	EECS5R5V105	1F, 5.5V, Memory Back-up	1
	C123	ECEA0JKA470	47μF, 6.3V	1
	C125, 137	ECUV1H104ZFX	0.1μF	2
	C140	ECEA0JKA470	47μF, 6.3V	1
	C141	ECEA1CKA100	10μF, 16V	1
	C142	ECEA0JKA470	47μF, 6.3V	1
	C143, 144	ECUV1H104ZFX	0.1μF	2
	C145～147	ECUV1H104ZFX	0.1μF	3
	C148, 149	ECCR1H681J	680pF	2
	C151, 152	ECEA1HKA010	1μF, 50V	2
	C153, 154	ECUV1H222KX	0.0022μF	2
	C155, 223, 230	ECUV1H104ZFX	0.1μF	3
	C250	EECS5R5V105	1F, 5.5V, Memory Back-up	1
	C358	ECUV1H104ZFX	0.1μF	1
	C380, 381	ECEA1CKN100	10μF, 16V	2
	C551	ECEA0JU102	1000μF, 6.3V	1
	C553	ECUV1H223KBX	0.022μF	1
	C555	ECEA1VKA470	47μF, 35V	1
	C556	ECUV1H472KBG	0.0047μF	1
	C557	ECEA1CKA100	10μF, 16V	1
	C558, 633, 700, 701, 730～734, 783	ECUV1H104ZFX	0.1μF	10

AS AMP & POWER SUPPLY CIRCUIT

	Ref. No.	Part No.	Description	P/S
		INTEGRATED CIRCUITS		
	IC1	M5F78M15L	+15V Voltage Regulator	1
	IC2	M5F79M15L	−15V Voltage Regulator	1
○	IC5～10	M5218AL	Operational Amplifier	6

Ref. No.	Part No.	Description	P/S
COIL			
L1	SLCG3A121T	Coil	1
RESISTORS			
R1	ERJ6GEYJ103V	10kΩ	1
R4	ERJ6GEYJ222V	2.2kΩ	1
R5, 6	ERJ6GEYJ102V	1kΩ	2
R7	ERJ6GEYJ104V	100kΩ	1
R8	ERJ6GEYJ102V	1kΩ	1
R9	ERJ6GEYJ154V	150kΩ	1
R10	ERJ6GEYJ472V	4.7kΩ	1
R11	ERJ6GEYJ471V	470Ω	1
R12, 13	ERJ6GEYJ101V	100Ω	2
R14	ERJ6GEYJ472V	4.7kΩ	1
R15	ERJ6GEYJ222V	2.2kΩ	1
R16	ERJ6GEYJ472V	4.7kΩ	1
R17	ERJ6GEYJ221V	220Ω	1
R18	ERJ6GEYJ101V	100Ω	1
R19	ERJ6GEYJ472V	4.7kΩ	1
R20	ERJ6GEYJ221V	220Ω	1
R25	ERJ6GEYJ101V	100Ω	1
R26	ERJ6GEYJ103V	10kΩ	1
R27	ERJ6GEYJ472V	4.7kΩ	1
R28, 29	ERJ6GEYJ103V	10kΩ	2
R31	ERJ6GEYJ472V	4.7kΩ	1
R33	ERJ6GEYJ103V	10kΩ	1
R34	ERJ6GEYJ103V	10kΩ	1
R35~37	ERJ6GEYJ471V	470Ω	3
R38	ERJ6GEYJ102V	1kΩ	1
R39	ERJ6GEYJ154V	150kΩ	1
R45	ERJ6GEYJ473V	47kΩ	1
R46	ERJ6GEYJ221V	220Ω	1
R47	ERJ6GEYJ470V	47Ω	1
R48~50, 52, 53	ERJ6GEYJ472V	4.7kΩ	5
R54	ERJ6GEYJ221V	220Ω	1
R55	ERJ6GEY0R00V	0Ω	1
R56	ERJ6GEYJ333V	33kΩ	1
R58	ERJ6GEY0R00V	0Ω	1
R60	ERJ6GEYJ102V	1kΩ	1
R85, 87, 88	ERJ6GEY0R00V	0Ω	3
R90, 91	ERJ6GEYJ470V	47Ω	2
R92	ERJ6GEYJ222V	2.2kΩ	1
R93, 94	ERJ6GEYJ470V	47Ω	2
R95, 96	ERJ6GEYJ331V	330Ω	2
R99	ERJ6GEYJ222V	2.2kΩ	1
R101	ERJ6GEYJ221V	220Ω	1
R102	ERJ6GEYJ471V	470Ω	1
R104	ERJ6GEYJ222V	2.2kΩ	1
R105	ERJ6GEYJ682V	6.8kΩ	1
R111	ERJ6GEYJ103V	10kΩ	1
R112	ERJ6GEY0R00V	0Ω	1
R140	ERJ6GEYJ102V	1kΩ	1
R142, 144	ERJ6GEYJ822V	8.2kΩ	2
R145	ERJ6GEYJ683V	68kΩ	1
R146	ERJ6GEYJ333V	33kΩ	1
R147	ERJ6GEYJ273V	27kΩ	1
R148	ERJ6GEYJ683V	68kΩ	1
R149	ERJ6GEYJ333V	33kΩ	1
R150	ERJ6GEYJ273V	27kΩ	1
R153, 154	ERJ6GEYJ683V	68kΩ	2
R155, 156	ERJ6GEYJ222V	2.2kΩ	2
R220, 221	ERJ6GEYJ102V	1kΩ	2
R222	ERJ6GEYJ101V	100Ω	1
R223	ERJ6GEYJ683V	68kΩ	1
R224	ERJ6GEYJ471V	470Ω	1
R321	ERJ6GEYJ102V	1kΩ	1
R322	ERJ6GEYJ471V	470Ω	1
R323	ERJ6GEYJ102V	1kΩ	1
R325	ERJ6GEY0R00V	0Ω	1
R562, 563	ERJ6GEYJ682V	6.8kΩ	2
R593	ERJ6GEYJ221V	220Ω	1
R594	ERJ6GEYJ101V	100Ω	1
R651	ERJ6GEYJ103V	10kΩ	1
R667	ERJ6GEYJ222V	2.2kΩ	1
R700, 701	ERJ6GEYJ470V	47Ω	2
R702	ERJ6GEYJ472V	4.7kΩ	1
R704	ERJ6GEYJ470V	47Ω	1
R711	ERJ6GEY0R00V	0Ω	1
R750, 751	ERJ6GEYJ222V	2.2kΩ	2
R771	ERJ6GEYJ102V	1kΩ	1
R776	ERJ6GEYJ101V	100Ω	1
R777	ERJ6GEY0R00V	0Ω	1
R778	ERJ6GEYJ103V	10kΩ	1
R785	ERJ6GEY0R00V	0Ω	1
CAPACITORS			
C5, 6, 8, 12	ECUV1H104ZFX	0.1μF	4
C13	ECQV1H224JM	0.22μF	1
C14, 19~25	ECUV1H104ZFX	0.1μF	8
C26	ECUV1H101JG	100pF	1
C27, 28	ECUV1H104ZFX	0.1μF	2
C30	ECUV1H101JG	100pF	1
C31, 32	ECUV1H104ZFX	0.1μF	2
C33	ECUV1H101JG	100pF	1
C42	ECUV1H104ZFX	0.1μF	1
C43	ECUV1H101JG	100pF	1
C44, 45, 51, 63, 84~87	ECUV1H104ZFX	0.1μF	8
C48	ECUV1H060DCN	6pF	1
C113	EECS5R5V105	1F, 5.5V, Memory Back-up	1
C123	ECEA0JKA470	47μF, 6.3V	1
C125, 137	ECUV1H104ZFX	0.1μF	2
C140	ECEA0JKA470	47μF, 6.3V	1
C141	ECEA1CKA100	10μF, 16V	1
C142	ECEA0JKA470	47μF, 6.3V	1
C143, 144	ECUV1H104ZFX	0.1μF	2
C145~147	ECUV1H104ZFX	0.1μF	3
C148, 149	ECCR1H681J	680pF	2
C151, 152	ECEA1HKA010	1μF, 50V	2
C153, 154	ECUV1H222KX	0.0022μF	2
C155, 223, 230	ECUV1H104ZFX	0.1μF	3
C250	EECS5R5V105	1F, 5.5V, Memory Back-up	1
C358	ECUV1H104ZFX	0.1μF	1
C380, 381	ECEA1CKN100	10μF, 16V	2
C551	ECEA0JU102	1000μF, 6.3V	1
C553	ECUV1H223KBX	0.022μF	1
C555	ECEA1VKA470	47μF, 35V	1
C556	ECUV1H472KBG	0.0047μF	1
C557	ECEA1CKA100	10μF, 16V	1
C558, 633, 700, 701, 730~734, 783	ECUV1H104ZFX	0.1μF	10

AS AMP & POWER SUPPLY CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC1	M5F78M15L	+15V Voltage Regulator	1
IC2	M5F79M15L	−15V Voltage Regulator	1
○ IC5~10	M5218AL	Operational Amplifier	6
TRANSISTORS			
Q1	2SC3940ARS	Transistor	1
Q2	2SA1534AR	Transistor	1
Q3	2SC3940ARS	Transistor	1
Q4	2SA1534AR	Transistor	1
S Q5~6	2SA1015-GR	2SA933STRS (SUB. Part)	2
S Q7, 11, 12	2SC1815GR	Transistor	3
S Q13	2SA1015-GR	2SA933STRS (SUB. Part)	1
S Q14	2SC1815GR	Transistor	1
S Q15	2SA1015-GR	2SA933STRS (SUB. Part)	1
Q16	2SB946P	Transistor	1
Q17	2SD1271P	Transistor	1
S Q18	2SC1815GR	Transistor	1
S Q19	2SA1015-GR	2SA933STRS (SUB. Part)	1
Q20	2SB946P	Transistor	1
Q21	2SD1271P	Transistor	1
S Q22	2SA1015-GR	2SA933STRS (SUB. Part)	1
DIODES			
D1, 2	SVDGERA1502	Rectifier	2
S D3~10 ⚠	SVDS3V20	Rectifier	8
D11, 12	MA4180	Zener, 18V	2
D15	MA165	Diode	1
D16	EK04	Diode	1
○ D19, 20, 27, 28	MA29WA	Diode	4
D33	EK04	Diode	1
COILS			
L2, 3	QLCGTKR33KA	0.33mH, Network	2
FUSES			
F4, 5 ⚠	XBA2C20TB0	T2A, 250V, Others	2
F4, 5 ⚠	XBA1C25NU100	2.5A, 125V, M MC XM	2
RESISTORS			
R9, 10	ERDS2TJ222	2.2kΩ	2
R11	ERDS2TJ221	220Ω	1
R12	ERDS2TJ681	680Ω	1
R13	ERDS2TJ221	220Ω	1
R14	ERDS2TJ333	33kΩ	1
R15	ERDS2TJ104	100kΩ	1
R16	ERDS2TJ333	33kΩ	1
R18	ERDS2TJ122	1.2kΩ	1
R19	ERDS2TJ124	120kΩ	1
R21	ERDS2TJ561	560Ω	1
R22	ERDS2TJ104	100kΩ	1
R25	ERDS2TJ122	1.2kΩ	1
R26	ERDS2TJ124	120kΩ	1
R27	ERDS2TJ104	100kΩ	1
R28	ERDS2TJ681	680Ω	1
R31	ERDS2TJ561	560Ω	1
R32	ERDS2TJ104	100kΩ	1
R39	ERDS2TJ152	1.5kΩ	1
R41	ERDS2TJ104	100kΩ	1
R42	ERDS2TJ154	150kΩ	1
R43	ERDS2TJ220	22Ω	1
R45	ERDS2TJ104	100kΩ	1
R46	ERDS2TJ220	22Ω	1
R47	ERDS2TJ154	150kΩ	1
R48, 49	ERDS2TJ102	1kΩ	2
R50, 51 ⚠	ERD2FCVJ4R7	4.7Ω, 1/4W, Fuse Type	2
R52, 53	ERDS2TJ103	10kΩ	2
R54, 55 ⚠	ERQ14AJ2R0	2Ω, 1/4W, Fuse Type	2
R56 ⚠	ERD2FCVJ6R8	6.8Ω, 1/4W, Fuse Type	1
R57 ⚠	ERD2FCJ6R8	6.8Ω, 1/4W, Fuse Type	1
R58~60	ERDS2TJ103	10kΩ	3
R61, 62, 80	ERDS2TJ472	4.7kΩ	3
R81	ERDS2TJ104	100kΩ	1
R83	ERDS2TJ103	10kΩ	1
R84	ERDS2TJ473	47kΩ	1
R85	ERDS2TJ332	3.3kΩ	1
R86	ERDS2TJ474	470kΩ	1
R89	ERDS2TJ222	2.2kΩ	1
R90	ERDS2TJ102	1kΩ	1
R91, 92	ERDS2TJ222	2.2kΩ	2
○ R93	ER0S2CKF1541	1.54kΩ	1
R94, 95	ER0S2CKF1001	1kΩ, ±1%	2
R96, 97 ⚠	ERD2FCVG101	100Ω, 1/4W, Fuse Type	2
R98, 99	ERDS2TJ331	330Ω	2
R100 ⚠	ERD25FVJ4R7	4.7Ω, 1/4W, Flame-Proof	1
R101	ERDS2TJ474	470kΩ	1
R102	ERDS2TJ152	1.5kΩ	1
R104	ERDS2TJ222	2.2kΩ	1
R105	ERDS2TJ102	1kΩ	1
R106, 107	ERDS2TJ222	2.2kΩ	2
R108~110	ER0S2CKF1001	1kΩ, ±1%	3
R111 ⚠	ERD2FCVG101	100Ω, 1/4W, Fuse Type	1
R112, 113	ERDS2TJ331	330Ω	2
R114 ⚠	ERD2FCVG101	100Ω, 1/4W, Fuse Type	1
R115 ⚠	ERD25FVJ4R7	4.7Ω, 1/4W, Flame-Proof	1
R116, 117	ERDS2TJ331	330Ω	2
R118 ⚠	ERD2FCVJ6R8	6.8Ω, 1/4W, Fuse Type	1
R201, 202 ⚠	ERD25FVJ4R7	4.7Ω, 1/4W, Flame-Proof	2
CAPACITORS			
C7	ECQV1H684JM	0.0068μF	1
C8	ECQV1H474JM	0.47μF	1
C10	ECQB1H333JF	0.033μF	1
C11	ECQB1H473JF	0.047μF	1
C12	ECQV1H684JM	0.68μF	1
C13	ECQB1H333JF	0.033μF	1
C14	ECQV1H474JM	0.47μF	1
C16	ECQB1H473JF	0.047μF	1
C17	ECQB1H223JF	0.022μF	1
C18	ECCR1H221J	220pF	1
C19	ECQV1H104JM	0.1μF	1
C20	ECQG1H472KZ	0.0047μF	1
C21	ECQV1H104JM	0.1μF	1
C22	ECQG1H472KZ	0.0047μF	1
C23, 24	ECQB1H223JF	0.022μF	2
C24	ECCR1H221J	220pF	1
C25, 26	ECCR1H220J	22pF	2
C28 ⚠	ECQE1A104M6	0.1μF, 125V	1
C29, 31	ECEA1VU332	3300μF, 35V	2
C32, 34	ECEA1VU222	2200μF, 35V	2
C36, 37	ECRF1H104ZF	0.1μF	2
C38	ECEA1CKA100	10μF, 16V	1
C39	ECEA1CU331	330μF, 16V	1
C49	ECEA1HKN2R2	2.2μF, 50V	1
C50	ECQB1H223JF	0.022μF	1
C51	ECQV1H104JM	0.1μF	1
C54	ECEA1HKN2R2	2.2μF, 50V	1
C55	ECQB1H223JF	0.022μF	1
C56	ECQV1H104JM	0.1μF	1
C59, 60	ECEA50Y2R2	2.2μF, 50V	2
C61, 62	ECEA50Y8R2	8.2μF, 50V	2
C63, 64	ECEA50Y22	22μF, 50V	2

ACP AC POWER SUPPLY CIRCUIT

	Ref. No.		Part No.	Description	P/S
	COILS				
	L1	⚠	SLTGLF3	Line Filter	1
	SWITCH				
	S1	⚠	SSRG100A	Voltage Selector, X XR XS XD XT	1
	FUSES				
	F1	⚠	XBA1C63NU100	6.3A, 125V, M MC XM	1
	F1	⚠	XBA2C31TB0	T3.15A, 250V, X XR XS XD XT	1
	F2	⚠	XBA2C20TB0	T2A, 250V, X XR XS XD XT	1
	F3	⚠	XBA2C20TB0	T2A, 250V, except M MC XM	1
	CAPACITORS				
	C1	⚠	ECQU2A104MN	0.1μF, 250V, Across-the Line Capacitor, Others	1
○	C1	⚠	ECQU2A104MT	0.1μF, 250V, Across-the Line Capacitor, XL EN EZ EK EW EF EA EP EH	1
	C2	⚠	ECKCVA1472MF	4700pF, Line Capacitor	1
	C3		ECRF1H104ZF	0.1μF	1

NW NETWORK CIRCUIT

Ref. No.	Part No.	Description	P/S
CAPACITORS			
C1	ECEA50Y2R2	2.2μF, 50V	1
C2	ECEA50Y2R2	2.2μF, 50V	1

CPSQ SEQUENCER CONTROL CIRCUIT

Ref. No.	Part No.	Description	P/S
DIODES			
D1~18	MA165	Diode	18
D19~36	LN382G	LED (Green)	18
SWITCHES			
S1~18	EVQ21907K	Push Switch	18
VARIABLE RESISTOR			
VR1	EVD06510B24G	20kΩ B	1
CAPACITOR			
C1	ECRF1H104ZF	0.1μF	1

VSC VOICE SETTING COMPUTER

Ref. No.	Part No.	Description	P/S
DIODES			
D1~9	MA165	Diode	9
D10~17	SEL6210S	LED (RED)	8
SWITCHES			
S1~9	EVQ21907K	Push Switch	9

CPR CONTROL PANEL RIGHT CIRCUIT

	Ref. No.		Part No.	Description	P/S
	INTEGRATED CIRCUITS				
	IC1		M37471M2196S	16 bit Microcomputer	1
	IC2		HD74LS07P	Hex Buffers	1
	IC3		HD74LS07P	Hex Buffers	1
	TRANSISTORS				
	Q1~5		2SA830SB	Transistor	5
S	Q12		2SA1015-GR	2SA933STRS (SUB. Part)	1
S	Q13		2SC1815GR	Transistor	1
	DIODES				
	D1~15, 22~35, 62		MA165	Diode	30
	D36~39, 41, 44, 46, 50, 51, 55, 56, 58, 59		LN282R	LED (Red)	13
	D40, 42, 45, 47~49, 52		LN382G	LED (Green)	7
	OSCILLATOR				
	X1		EF0EC4004A3	4MHz, Ceramic Oscillator	1
	SWITCHES				
	S1~15, 22~35		EVQ21907K	Push Switch	29
	IC PROTECTOR				
	IP1	⚠	ICP-N10T104	IC Protector	1
	VARIABLE RESISTOR				
	VR1		QRVG20N01B14	10kΩ B	1
	RESISTORS				
	R1		ERDS2TJ473	47kΩ	1
	R2		ERDS2TJ333	33kΩ	1
	R3		ERDS2TJ182	1.8kΩ	1
	R4		ERDS2TJ392	3.9kΩ	1
	R5		ERDS2TJ472	4.7kΩ	1
	R6		ERDS2TJ154	150kΩ	1
	R7		ERDS2TJ472	4.7kΩ	1
	R8		ERDS2TJ222	2.2kΩ	1
	R9		ERDS2T0	0Ω, 1/4W	1
	R10		ERDS2TJ102	1kΩ	1
	R11		ERDS2TJ101	100Ω	1
	R12		ERDS2TJ222	2.2kΩ	1
	R13		ERDS2TJ332	3.3kΩ	1
	R14, 15		ERDS2TJ221	220Ω	2
	R16		ERDS2TJ102	1kΩ	1
	R17		ERDS2TJ123	12kΩ	1
	R18~29		ERDS2TJ103	10kΩ	12
	R30~40		ERDS2TJ680	68Ω	11
	R41		ERDS2TJ333	33kΩ	1
	CAPACITORS				
	C1		ECEA1CKA100	10μF, 16V	1
	C2		ECRF1H104ZF	0.1μF	1
	C3		ECEA0JKA470	47μF, 6.3V	1
	C4		ECRF1H104ZF	0.1μF	1
	C5		ECEA0JKA470	47μF, 6.3V	1
	C6~11		ECRF1H104ZF	0.1μF	6

CPL CONTROL PANEL LEFT CIRCUIT

Ref. No.		Part No.	Description	P/S
INTEGRATED CIRCUITS				
IC1		M37471M2196S	16 bit Microcomputer	1
IC2, 3		HD74LS07P	Hex Buffers	2
TRANSISTORS				
Q1~4		2SA830SB	Transistor	4
DIODES				
D1~16, 18, 20, 22, 24~32, 34, 36, 38, 40~45, 49~59, 73~78, 81~88		MA165	Diode	62
D101~105, 107, 109~113, 115, 117, 119~121, 123, 125~129, 150, 157, 159		LN282R	LED (Red)	25
D106, 108, 114, 116, 118, 130~132		LN382G	LED (Green)	8
OSCILLATOR				
X1		EF0EC4004A3	4MHz, Ceramic Oscillator	1
SWITCHES				
S1~16, 18, 20, 22, 24~32, 34, 36, 38, 40~45, 49~59, 73~78, 81~88		EVQ21907K	Push Switch	62
IC PROTECTOR				
IP1	⚠	ICP-N10T104	IC Protector	1
RESISTORS				
R1		ERDS2TJ333	33kΩ	1
R2		ERDS2T0	0Ω, 1/4W	1
R3		ERDS2TJ102	1kΩ	1
R4, 5		ERDS2TJ221	220Ω	2
R6~9		ERDS2TJ472	4.7kΩ	4
R10~21		ERDS2TJ103	10kΩ	12
R24~31, 33, 34		ERDS2TJ680	68Ω	10
CAPACITORS				
C1~3		ECRF1H104ZF	0.1μF	3
C4		ECEA0JKA470	47μF, 6.3V	1
C7		ECRF1H104ZF	0.1μF	1

CPSL LOWER CONTROL PANEL LEFT

	Ref. No.		Part No.	Description	P/S
	INTEGRATED CIRCUITS				
	IC1		M37471M2196S	16 bit Microcomputer	1
○	IC2		H74LS138FPTR		1
	IC3~5		M74LS07FP	Hex Buffers	3
	TRANSISTORS				
	Q1~8		2SA830SB	Transistor	8
	DIODES				
	D8, 11~15, 17~32, 39, 40, 45~62, 65~78, 81~83, 85, 86, 91, 92		MA165	Diode	63
	D208~213, 215, 219, 220, 222, 224~228, 230~237, 239~243, 245~252, 254~258, 260, 261, 266~271, 299, 300		LN282R	LED (Red)	51
	D214, 218, 221, 229, 238, 244, 253, 259, 314		LN382G	LED (Green)	9
	OSCILLATOR				
	X1		EF0EC4004A3	4MHz, Ceramic Oscillator	1
	COMPONENT COMBINATION				
	Z1		EXBPI8472JM	4.7kΩ × 8	1
	SWITCHES				
	S8, 11~15, 17~32, 39, 40, 45~62, 65~78, 81, 83, 86, 91, 92, 185		EVQ21907K	Push Switch	62
	IC PROTECTOR				
	IP1	⚠	ICP-N10T104	IC Protector	1
	RESISTORS				
	R1~15		ERDS2TJ680	68Ω	15
	R16		ERDS2TJ472	4.7kΩ	1
	R17~24		ERDS2TJ103	10kΩ	8

	Ref. No.	Part No.	Description	P/S
	R25	ERDS2T0	0Ω, 1/4W	1
	R26	ERDS2TJ333	33kΩ	1
	R27	ERDS2TJ102	1kΩ	1
	R28	ERDS2TJ221	220Ω	1
	R29	ERDS2T0	0Ω, 1/4W	1
	R31	ERDS2TJ184	180kΩ	1
	R32~35	ERDS2TJ123	12kΩ	4
	R37	ERDS2TJ101	100Ω	1
	CAPACITORS			
	C1	ECEA0JKA331	6V, 330μF	1
	C2, 3	ECRF1H104ZF	0.1μF	2
	C4	ECEA0JKA470	47μF, 6.3V	1
	C7	ECEA0JKN470	47μF, 6.3V	1
	C8~11	ECRF1H104ZF	0.1μF	4

JACK JACK CIRCUIT

	Ref. No.	Part No.	Description	P/S
	INTEGRATED CIRCUITS			
○	IC1	QCPL-260L	Photo Coupler	1
○	IC2	M5218AL	Operational Amplifier	1
	TRANSISTORS			
S	Q1~3	2SA1015-GR	2SA933STRS (SUB. Part)	3
	DIODES			
	D1~5	MA165	Diode	5
	COILS			
	L1~6	QLQGT3T150SA	Coil	6
	L8, 9	QLQGT1B800MA	Coil	2
	JACKS			
	JK1	QJJG003AA	AUX IN L	1
	JK2	QJJG003AA	AUX IN R	1
	JK3	QJJG003AA	LINE OUT L	1
	JK4	QJJG003AA	LINE OUT R	1
	JK5	SJSG1370A	MIDI IN	1
	JK6	SJSG1370A	MIDI OUT	1
	JK7	SJSG1370A	MIDI THRU	1
	JK8	SJJG100A	PHONES 1	1
	JK9	SJJG100A	PHONES 2	1
	RESISTORS			
	R1, 2	ERDS2TJ102	1kΩ	2
	R3, 4	ERDS2TJ472	4.7kΩ	2
	R5, 6	ERDS2TJ822	8.2kΩ	2
	R7, 8	ERDS2TJ103	10kΩ	2
	R9, 10	ERDS2TJ682	6.8kΩ	2
	R11, 12	ERDS2TJ223	22kΩ	2
	R20	ERDS2TJ221	220Ω	1
	R21	ERDS2TJ102	1kΩ	1
	R22	ERDS2TJ330	33Ω	1
	R23	ERDS2TJ151	150Ω	1
	R24	ERDS2TJ100	10Ω	1
	R25	ERDS2TJ103	10kΩ	1
	R26, 27	ERDS2TJ680	68Ω	2

	Ref. No.	Part No.	Description	P/S
○	R30~33	ERG1SJ680	68Ω, 1W, Flame-Ploof	4
	R40, 41	ERDS2TJ471	470Ω	2
	R42, 43	ERDS2TJ561	560Ω	2
	CAPACITORS			
	C1	ECCR1H471J	470pF	1
	C2	ECBA1H471KB5	470pF	1
	C4, 5	ECEA1HKN010	1μF, 50V	2
	C10	ECCR1H471J	470pF	1
	C11	ECBA1H471KB5	470pF	1
	C13	ECRF1H104ZF	0.1μF	1
	C14	ECBA1H101KB	100pF	1
	C15	ECRF1H104ZF	0.1μF	1
	C16	ECCR1H101J	100pF	1
	C17, 18	ECQB1H223JF	0.022μF	2
	C20	ECRF1H104ZF	0.1μF	1
	C21, 22	ECCR1H221J	220pF	2
	C23, 25	ECRF1H104ZF	0.1μF	2
	C31, 32	ECQB1H473JF	0.047μF	2
	C40	ECRF1H104ZF	0.1μF	1

INV INVERTER

	Ref. No.	Part No.	Description	P/S
	TRANSISTOR			
	Q1	2SC3940ARS	Transistor	1
	TRANSFORMER			
	T1	QTDG001A	Transformer	1
	IC PROTECTOR			
	IP1 ⚠	ICP-N10T104	IC Protector	1
	RESISTORS			
	R1	ERDS2TJ470	47Ω	1
	R2	ERDS2TJ222	2.2kΩ	1
	C1	ECEA0JKA101	100μF, 6.3V	1
	CAPACITORS			
	C2, 3	ECRF1H104ZF	0.1μF	2
	C4	ECEA1CKA100	10μF, 16V	1
	C7, 8	ECRF1H104ZF	0.1μF	2

PKB PEDAL KEYBOARD CIRCUIT

	Ref. No.	Part No.	Description	P/S
	TRANSISTORS			
S	Q1, 2, 4	2SA1015-GR	2SA933STRS (SUB. Part)	3
S	Q5~17	2SC2320LFG	2SC1310FG (SUB. Part)	13
	RESISTORS			
	R1, 2	ER0S2CKF4700	470Ω, ±1%	2
	R3	ERDS2TJ472	4.7kΩ	1
	R5	ER0S2CKF4700	470Ω, ±1%	1

	Ref. No.	Part No.	Description	P/S
	R7	ERDS2TJ472	4.7kΩ	1
	R8	ERDS2TJ103	10kΩ	1
	R9	ERDS2TJ472	4.7kΩ	1
	R10	ERDS2TJ103	10kΩ	1
	R11	ERDS2TJ472	4.7kΩ	1
	R12	ERDS2TJ103	10kΩ	1
	R13	ERDS2TJ472	4.7kΩ	1
	R14	ERDS2TJ103	10kΩ	1
	R15	ERDS2TJ472	4.7kΩ	1
	R16	ERDS2TJ103	10kΩ	1
	R17	ERDS2TJ472	4.7kΩ	1
	R18	ERDS2TJ103	10kΩ	1
	R19	ERDS2TJ472	4.7kΩ	1
	R20	ERDS2TJ103	10kΩ	1
	R21	ERDS2TJ472	4.7kΩ	1
	R22	ERDS2TJ103	10kΩ	1
	R23~29	ER0S2CKF4700	470Ω, ±1%	7
	R30	ER0S2CKF1001	1kΩ, ±1%	1
	R32	ERDS2TJ472	4.7kΩ	1
	R33	ERDS2TJ103	10kΩ	1
	R34	ERDS2TJ472	4.7kΩ	1
	R35	ERDS2TJ103	10kΩ	1
	R36	ERDS2TJ472	4.7kΩ	1
	R37	ERDS2TJ103	10kΩ	1
	R38	ERDS2TJ472	4.7kΩ	1
	R39	ERDS2TJ103	10kΩ	1
	R40	ERDS2TJ472	4.7kΩ	1
	R41	ERDS2TJ103	10kΩ	1
	R42~45	ER0S2CKF4700	470Ω, ±1%	4
	R46	ER0S2CKF2201	2.2kΩ, ±1%	1
	R51	ERDS2TJ472	4.7kΩ	1

EXP EXPRESSION CIRCUIT

	Ref. No.	Part No.	Description	P/S
	CDS			
	CS1	SVEG5	Light Sensitive Device	1

MKBL LOWER MANUAL KEYBOARD CIRCUIT

	Ref. No.	Part No.	Description	P/S
	DIODES			
S	D1~88	MA162A	MA150IR (SUB. Part)	88

MKBU UPPER MANUAL KEYBOARD CIRCUIT

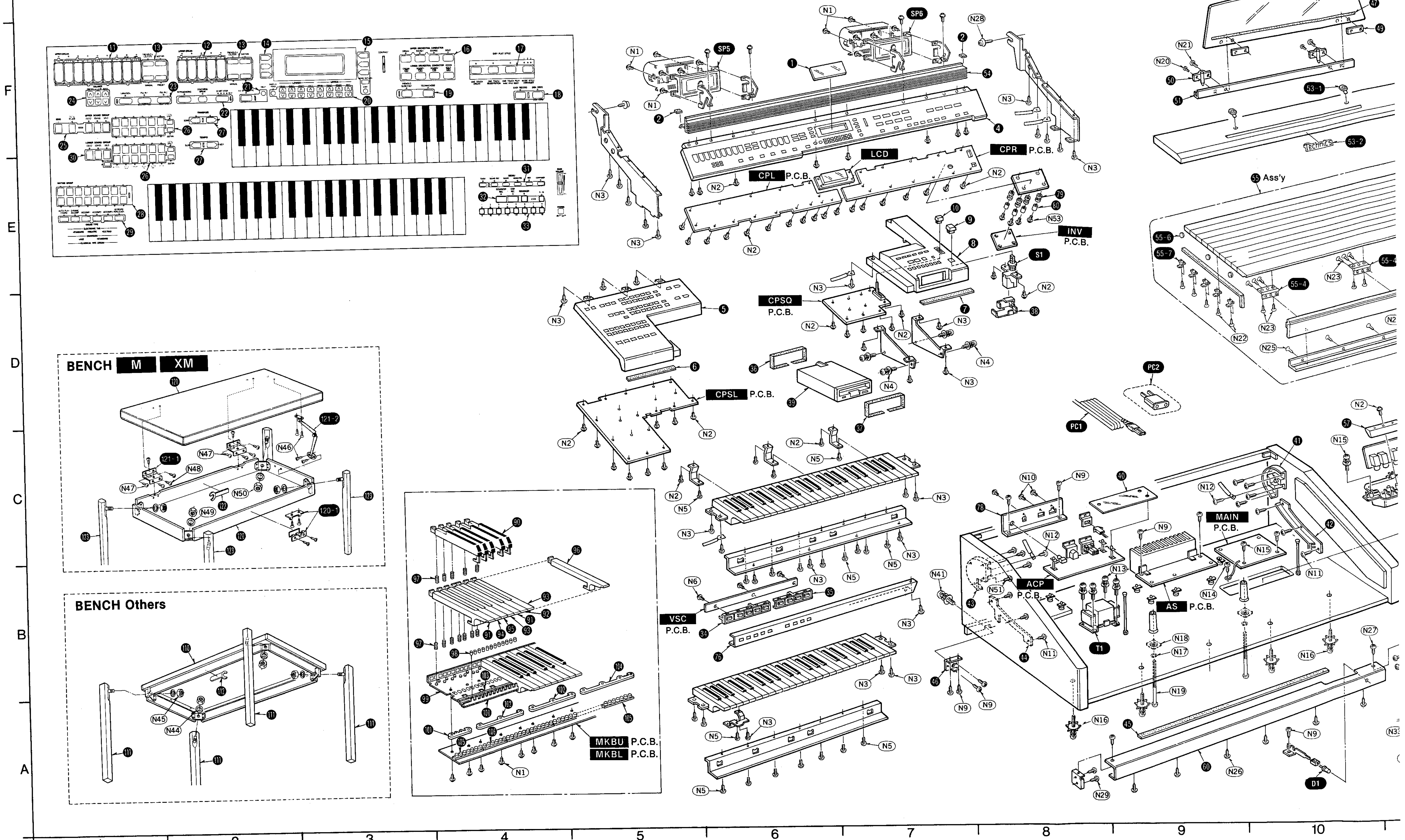
	Ref. No.	Part No.	Description	P/S
	INTEGRATED CIRCUIT			
	IC1	MN50020PGV	Gate Array	1
	DIODES			
S	D1~88	MA162A	MA150IR (SUB. Part)	88

	Ref. No.	Part No.	Description	P/S
	COMPONENT COMBINATION			
	Z1	EXBPI8472JM	4.7kΩ×8	1
	CAPACITORS			
	C2	ECRF1H104ZF	0.1μF	1
	C3	ECBA1H471KB5	470pF	1
	C4	ECEA0JKA470	47μF, 6.3V	1

■ WIRING PARTS

	Ref. No.	Part No.	Description	P/S
○	W1	QEXGSA10025A	Connector with Wire	1
○	W2	QEXGSS11030A	Connector with Wire	1
	W3	QEXGSS08030A	Connector with Wire	1
	W4	QEXGSA07065A	Connector with Wire	1
○	W5	QEXGSA10010A	Connector with Wire	1
○	W6	QEXGSS13080A	Connector with Wire	1
○	W7	QEXGSA04030A	Connector with Wire	1
	W8	QEXGSA12035A	Connector with Wire	1
○	W9	QEXGEH03040H	Connector with Wire	1
	W10	QEXGZA12055A	Connector with Wire	1
○	W11	QEXGSS11060A	Connector with Wire	1
○	W12	QEXGSA10045A	Connector with Wire	1
	W13	QEXGVH03200B	Connector with Wire	1
○	W14	QEXGEH03040J	Connector with Wire	1
○	W15	QEXGVH04205B	Connector with Wire	1
○	W16	QEXGVH06095B	Connector with Wire	1
○	W17	QEXGZA08100E	Connector with Wire	1
○	W18	QEXGEL03055B	Connector with Wire	1
○	W19	QEXGEL03030C	Connector with Wire	1
	W20	SWKG04158LSA	Connector with Wire	1
	W21	QEXGLT04045B	Connector with Wire	1
○	W22	QEXGSA04010A	Connector with Wire	1
○	W24	QEXGZA34085B	Connector with Wire	1
○	W25	QEXGSA10035A	Connector with Wire	1

CABINET PARTS LOCATION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BENCH Others
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N45
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N1
MKBU P.C.B.
MKBL P.C.B.
N1
SP5
SP6
N28
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4
N3
LCD
CPR P.C.B.
CPL P.C.B.
N2
79
80
N53
INV P.C.B.
10
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S1
7
38
N4
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CPSQ P.C.B.
CPSL P.C.B.
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PC1
PC2
N5
N6
VSC P.C.B.
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N41
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N9
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N12
ACP P.C.B.
N51
N13
T1
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MAIN P.C.B.
AS P.C.B.
N14
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D1
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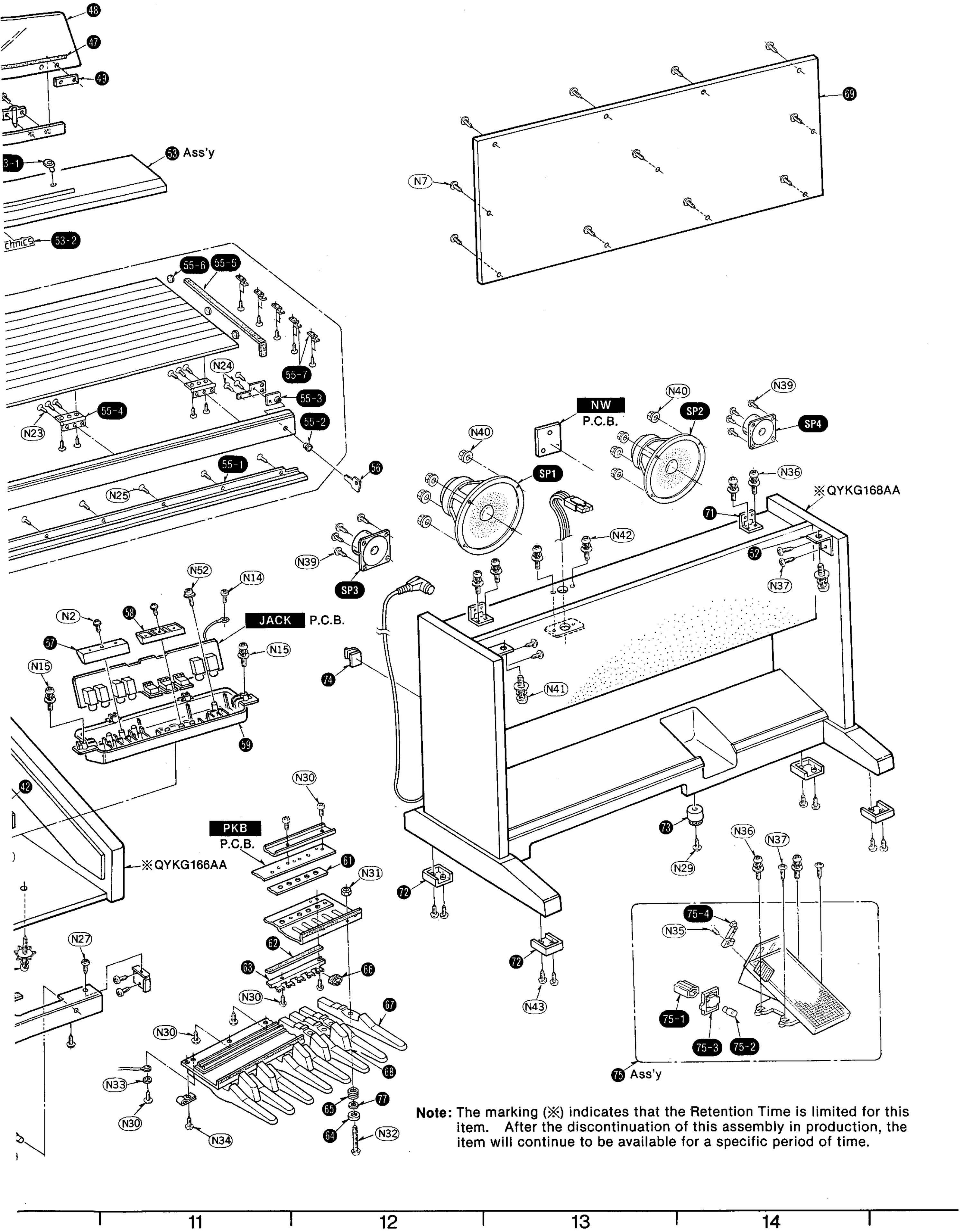


Note: The marking (※) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time.

REPLACEMENT PARTS LIST......Cabinet and Chassis Parts

Notes:

1. The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retension period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention.
   After the end of this period, the assembly will no longer be available.
2. ○ mark are new parts.
3. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
4. For part No. with area mark, check the area when placing an order.
5. The raw material indication for synthtic resin
   In order to facilitate classification of parts of synthetic resin manufacture and to promote the recycling of natural resources, a raw material symbol for such parts is indicated in the Ref. No./Material column.

■ CABINET & CHASSIA PARTS

Ref. No.	Part No.	Description	P/S
SWITCH			
S1 ⚠	ESB8273V	Power Switch	1
DIODE			
D1	LN29RP	LED, Power Indicator	1
SPEAKERS			
SP1, 2	EAS20PL255B	20cm, 6Ω	2
SP3, 4	EAS65PH31A3	6.5cm, 8Ω	2
SP5, 6	EAS15S09A	Speaker, 13×6cm, 8Ω	2
TRANSFORMER			
T1 ⚠	QTPG1N016A	Power Transformer, XL	1
T1 ⚠	QTPG1N014A	Power Transformer, M MC XM	1
T1 ⚠	QTPG1N017A	Power Transformer, Others	1
POWER CORD & PLUG			
PC1 ⚠	SJAG65	Power Cord, Others	1
PC1 ⚠	VJA0733	Power Cord, EK XD	1
PC1 ⚠	QJAG013AA	Power Cord, M MC XM	1
PC1 ⚠	QJAG014AA	Power Cord, XR XL	1
PC2 ⚠	SJP5213-1	Attachment Plug, X XT	1
CABINET PARTS			
○ 1	QKWG020AA	LCD Panel	1
2	SHSG1830A	Felt	2
○ 4 PS	QGPG0089AB	Control Panel	1
○ 5 PS	QGPG0090AB	Lower Control Pnel, Left	1
6	QMFG4054AA	Felt	1
7	QMFG4055AA	Felt	1
○ 8 PS	QGPG0034CB	Lower Control Pnel, Right	1
9	QGUG1040AA	Button, Power Switch	1
10	SBNG7031A	Knob	1
○ 11	QGUG1279BC	Button	1
○ 12	QGUG1279DB	Button	1
○ 13	QGUG1319AAK	Button	2
○ 14	QGUG1324AAK	Button	1
○ 15	QGUG1325AAK	Button	1
○ 16	QGUG1326AAK	Button	1
○ 17	QGUG1327AAK	Button	1
○ 18	QGUG1329AAK	Button	1
○ 19	QGUG1328AAK	Button	1
○ 20	QGUG1323AA01	Button	1
○ 21	QGUG1322AAK	Button	1
○ 22	QGUG1321AAK	Button	1
○ 23	QGUG1320AAK	Button	1
○ 24	QGUG1318AA01	Button	1
○ 25	QGUG1336AAK	Button	1
○ 26	QGUG1339BA01	Button	2
○ 27	QGUG1341AAK	Button	2
○ 28	QGUG1337AA01	Button	1
○ 29	QGUG1338AAK	Button	1
○ 30	QGUG1340AAK	Button	1
○ 31	QGUG1333AAK	Button	1
○ 32	QGUG1334AAK	Button	1
○ 33	QGUG1335AAK	Button	1
34	QGUG1281AA01	Button	1
35	QGUG1281BA01	Button	1
36	QMFG4103AA	Felt	1
37	QMFG1082AA	Felt	1
38 PS	SHRG8390A	Cover, Power SW.	1
○ 39	QAUG012AA	DDR Drive Unit	1
40	QMRG2015AA	ACP P.C.B. Cover	1
41 PS	SKEG7650A	Guide Rail	1
42 PS	SKEG7670A	Guide Rail	1
43 PS	SKEG7640A	Guide Rail	1
44 PS	SKEG7660A	Guide Rail	1
45	SHSG2870A	Felt	1
46	SUWG3001A	Bracket	2
47	SHRGA7210A	Felt	1
○ 48	SKGG1B110FK	Music Stand	1
49	SUWG3390A	Bracket	2
50	SBLG230B	Stay	2
○ 51	SGXG3230C	Ornament	1
52	SUWG3142A	Bracket	2
○ 53	QKQGA092AA	Top Cover	1
53-1	QMRG7021AA	Sleeve	2
53-2	SGBG160A	Technics Badge	1
○ 54	QGKG0002BA	Ornament	1
○ 55	QKQGF017AA	Keyboard Cover Ass'y	1
○ 55-1	QGKG0010BB	Ornament	1
55-2	SBEG40A	Staple	1
55-3	SBEG31A	Lock	1
55-4	SBHG6007-1	Hinge	3
○ 55-5	QMFG1170AA	Felt	2
55-6	SHSG119	Felt	6
55-7	SHRG9930A	Catch, Guide Rail	10
56	SBEG60A	Key	1
57	QMRG7028AC	Bracket	1
58	QMRG7029AC	Bracket	1
○ 59 PS	QGKG0076DB	Jack Panel	1
○ 60	QKSGE013BA	Front Panel	1

	Ref. No.		Part No.	Description	P/S
	61		SHGG50A	Rubber Switch (5 pcs. on one)	3
	62		SHSG1600B	Felt	1
	63		STBG4011A	Key Guide	1
	64		SHRG9240A	Spacer	13
	65		SUSG180A	Spring	13
	66		SHSG1460A	Felt	13
○	67	AS	STBG1091A	White Key	8
	68	AS	STBG2052A	Black Key	5
○	69		QKUG1035AAK	Rear Board, Speaker Box	1
	71		SUWG3020A	Bracket	2
	72	PP	SHRG2120D	Foot	4
	73		QKAG0004AA	Foot	1
	74		SHRG9620A	Cord Clamper	1
	75		SXVG5110A	Expression Pedal	1
	75-1		RJS205ZA	Socket	1
	75-2		XAMR55P	Lamp	1
	75-3		SHGG908	Lamp Holding Rubber	1
	75-4		SSHG14	Foot Switch	1
○	76		QGKG0056BA	Ornament Keyboard	1
	77		SHGG8130A	Rubber	13
○	78		SMKG3482B	AC Jack Panel, Others	1
○	78		SMKG3483B	AC Jack Panel, X XD XS XR XT	1
○	79		QMGG041AA	Spacer	4
○	80		QMXG007AA	Spacer	4

MANUAL KEYBOARD

	Ref. No.		Part No.	Description	P/S
	90	AS	STBG2071A	Black Key	36
	91	AS	STBG1101A	White Key (C and F Key)	14
	92	AS	STBG1111A	White Key (D Key)	6
	93	AS	STBG1121A	White Key (E and B Key)	14
	94	AS	STBG1131A	White Key (G Key)	8
	95	AS	STBG1141A	White Key (A Key)	8
	96	AS	STBG1151A	White Key (Top Octave C Key)	2
	97		SUSG271A	Spring	88
	98		SHGG9052A	Key Guide Rubber	88
	99		STBG6106A	Chassis	1
	100		SHSG3960A	Felt	1
	101		SHRGA9021A	Spacer	2
	102		SHRGA9010A	Spacer	4
	103		SHSG1931A	Felt	1
	104		SHRGA9030A	Spacer	1
	105		SSPG7004A	Rubber Switch (7 pcs. on one)	4
	106		SSPG6004A	Rubber Switch (6 pcs. on one)	10

BENCH M XM

	Ref. No.	Part No.	Description	P/S
○	110	QKQGA033ABK	Seat	1
	111	QKQGZ044AAK	Leg	4
	112	QFBG007AA	Spanner	1

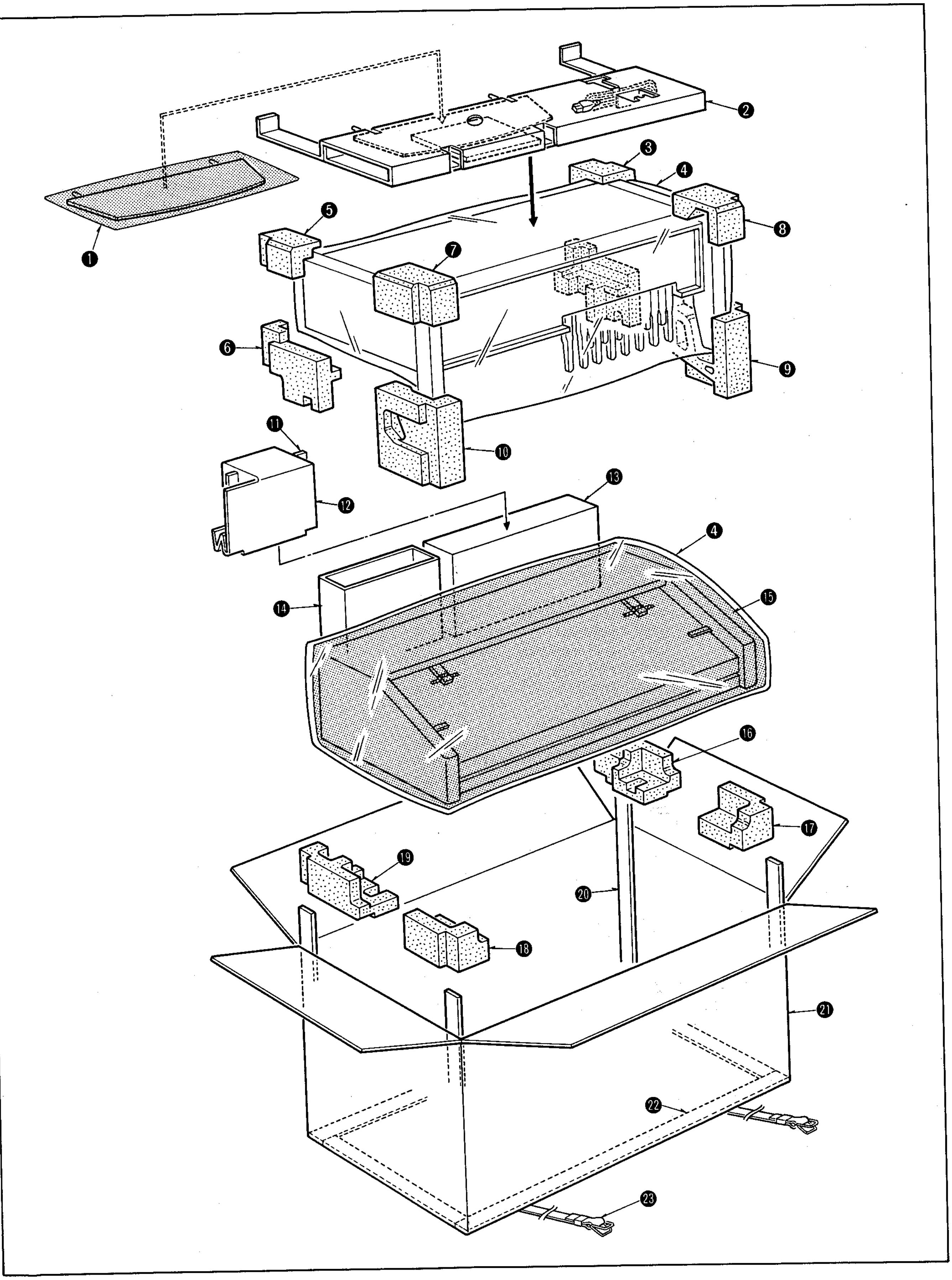
BENCH Others

	Ref. No.	Part No.	Description	P/S
○	120	QKQGD026AB	Frame, Wood	1
	120-1	SBHG40A	Latch	1
	121	SKZGC850A	Seat	1
	121-1	SBHG50B	Hinge	2
	121-2	SBLG70A	Stay	1
	122	SBEG190A	Spanner	1
	123	SKZGC471D	Leg	4

SCREWS & WASHERS

Ref. No.	Part No.	Description	P/S
N1	XTW3+10T	Screw	24
N2	XTW3+10Q	Screw	75
N3	XTB4+12A	Screw	31
N4	XYN3+F6	Screw with Washer	4
N5	XTB3+5C	Screw	18
N6	XTW3+8T	Screw	3
N7	XTT4+35AFVC	Screw	15
N9	XTB35+12A	Screw	5
N10	XTW3+8JFVC	Screw	3
N11	XTT4+14A	Screw	8
N12	XTV3+10G	Screw	2
N13	XYN4+F14	Screw with Washer	4
N14	SNEG2660A	Screw	5
N15	XYN4+F25	Screw with Washer	4
N16	QHDG006AA	Screw	5
N17	SNEG150A	Washer	2
N18	XWA5B	Washer	2
N19	XSN5+85	Screw	2
N20	XTB3+10JFVC	Screw	2
N21	XSB4+10FVC	Screw	2
N22	XTS4+12A	Screw	24
N23	XTS35+12A	Screw	15
N24	XTS3+12A	Screw	3
N25	XTS3+10AFVC	Screw	6
N26	XTT35+10AFVC	Screw	8
N27	XTB3+8BFVC	Screw	2
N28	SNEG2400A	Screw with Washer	2
N29	XTB35+20A	Screw	5
N30	XTB3+6B	Screw	11
N31	XNG5BS	Nut	13
N32	SNEG360A	Screw	13
N33	XWA4B	Washer	1
N34	XTB35+14A	Screw	1
N35	XTN26+6B	Screw	1
N36	XYN4+F20FZ	Screw with Washer	4
N37	XTT4+16AFZ	Screw	6
N38	XTT4+12AFVC	Screw	8
N39	XTT4+12A	Screw	8
N40	SNE499-1	Nut	8
N41	QHDG030AA	Screw with Washer	4
N42	XYN4+F20FZ	Screw with Washer	2
N43	XTB35+16A	Screw	8
N44	XWB10B	Washer	4
N45	XNH10G	Nut	4
N46	XTS3+14A	Screw	4
N47	XTB35+14AFVC	Screw	4
N48	XTS3+14AFVC	Screw	4
N49	XWB10B	Washer	4
N50	XNH10G	Nut	4
N51	XTB35+20A	Screw	8
N52	XTWSG2	Screw with Washer	1
N53	XTW3+14J	Screw	4

PACKING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PACKING PARTS

	Ref. No.		Part No.	Description	P/S
			PACKING PARTS		
	1	PE	QPHG039AA	Protection Cover	1
○	2		QPGG0298AA	Music Rack Case	1
○	3	PS	QPNG0507AA	Pad	1
	4	PE	QPFG022AA	Polyethylene Bag	1
○	5	PS	QPNG0506AA	Pad	1
○	6	PS	QPNG0510AA	Pad	1
○	7	PS	QPNG0504AA	Pad	1
○	8	PS	QPNG0505AA	Pad	1
○	9	PS	QPNG0509AA	Pad	1
○	10	PS	QPNG0508AA	Pad	1
○	11		QPGG0300AA	Spacer, Others	1
○	11		QPGG0303AA	Spacer, M XM	1
○	12		QPGG0299AA	Spacer, Others	1
○	12		QPGG0302AA	Spacer, M XM	1
○	13		QPGG0096AAK	Bench Case, Others	1
○	13		QPGG0121AB	Bench Case, M XM	1
○	14		QPGG0301AA	Spacer, Others	1
○	14		QPGG0304AA	Spacer, M XM	1
	15	PE	SPHG280A	Protection Sheet	1
○	16	PS	QPNG0515AA	Pad	1
○	17	PS	QPNG0513AA	Pad	1
○	18	PS	QPNG0512AA	Pad	1
○	19	PS	QPNG0514AA	Pad	1
○	20		QPQG037AA	Prop	4
○	21		QPGG0297AA	Carton	1
○	22		QPQG036AA	Frame	1
	23		SPSG40A	Band	2

	Ref. No.	Part No.	Description	P/S
		OPERATING INSTRUCTION MANUAL		
○	24	QQFGEA5AA	Operating instruction manual, Others	1
○	24-1	QQTG0314A	ENGLISH	1
○	24	QQFGEA5BA	Operating instruction manual, M	1
○	24-1	QQTG0317A	ENGLISH	1
○	24	QQFGEA5CA	Operating instruction manual, MC	1
○	24-1	QQTG0314A	ENGLISH	1
○	24-2	QQTG0318A	FRANCAIS	1
○	24	QQFGEA5DA	Operating instruction manual, EA EZ	1
○	24-1	QQTG0319A	DEUTSCH	1
○	24	QQFGEA5EA	Operating instruction manaul, EW	1
○	24-1	QQTG0314A	ENGLISH	1
○	24-2	QQTG0318A	FRANCAIS	1
○	24-3	QQTG0319A	DEUTSCH	1
○	24	QQFGEA5FA	Operating instruction manual, EF	1
○	24-1	QQTG0318A	FRANCAIS	1
○	24	QQFGEA5GA	Operating instruction manual, EP XM	1
○	24-1	QQTG0314A	ENGLISH	1
○	24-2	QQTG0320A	ESPANOL	1
○	24	QQFGEA5HA	Operating instruction manual, EH	1
○	24-1	QQTG0318A	FRANCAIS	1
○	24-2	QQTG0319A	DEUTSCH	1
○	24-3	QQTG0321A	NERDERLANDS	1
○	24	QQFGEA5JA	Operating instruction manual, X	1
○	24-1	QQTG0314A	ENGLISH	1
○	24-2	QQTG0320A	ESPANOL	1
○	24-3	QQTG0322A	中文	1
○	24	QQFGEA5KA	Operating instruction manual, XD	1
○	24-1	QQTG0314A	ENGLISH	1
○	24-2	QQTG0322A	中文	1
○	24	QQFGEA5LA	Operating instruction	1
○	24-1	QQTG0322A	中文	1
			manual, XT	